

July 1990

The National Locksmith[®]

..... ALOA
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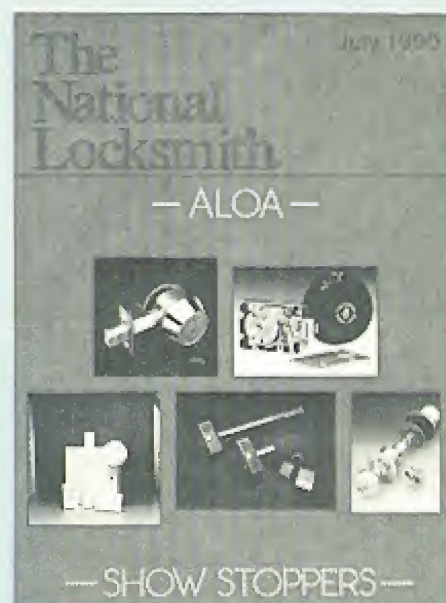


Contents

Features

- | | | | |
|------------|--------------------------------------|------------|-----------------------------------|
| 37 | Car Opening Tips | 116 | Preso-Matic Locks |
| 42 | Servicing Emhart Cores | 126 | On The Lighter Side |
| 48 | Innovations From HPC | 128 | Hirsch Electronics |
| 54 | Security Products By MAG | 132 | Earning Profits With Supra |
| 56 | Dale Opens Vault Doors | 136 | S&G's New Scrambler |
| 60 | The New Maxum By Medeco | 138 | High Tech's Model 1800 |
| 62 | Showstoppers | 152 | Servicing The 1990 Dynasty |
| 92 | Principles Of Manipulation II | 162 | Voodoo Collection |
| 104 | The Digital Door Lock | | |

*Click on the article
you wish to read*

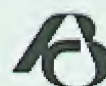


This month's ALOA show will be held in Chicago, IL. Featured on our front cover are products to be exhibited at the convention. Manufacturers are (clockwise from top left): U.S. Lock Corp., Alarm Lock Systems, Medeco Security Locks, Sargent & Greenleaf, Capricorn Electronics.

Departments

5 Commentary 6 Letters 13 Technitips 24 Newsmakers 168 Keyblank Corner

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Commentary

A Really Bad Idea

Wouldn't it be great if we could scrape the "bad apples" from the bottom of the locksmith barrel? As we all know, there are a few operators out there who don't deserve the title "Locksmith." I am not just talking about the butchers who do shameful work either for high or low prices. I am talking about the dishonest types who deliberately rip off their customers. Yes, we would be better off without them.

No one would argue with that point. However, how do we go about making this a perfect world in which the bad operators cannot exist? Well, ALOA has announced an attempt to do just that. (See page 90 for the article.) What they have decided to do is introduce federal legislation to require locksmiths to "obtain a federal permit that would prohibit convicted felons or criminals from practicing locksmithing."

Is this a good way to clean up our industry. *No way!* Absolutely, categorically not. I do not think there is any way our federal government can help police our trade. These are the same guys who are busy paying \$600 for a toilet seat and \$2,000 for a hammer! ALOA says that they will try to take an approach similar to that of federal legislation to prevent criminals from getting a license to sell guns. They cite that as a model...as if the boys in Washington have done a great job with gun control.

This is a very important issue, people. The question becomes: Do you want a federal investigation to be done on you and every other locksmith in the U.S.A. to weed out a few crooks? I seriously doubt that they could even begin to do a proper job of it. Look at the medical profession which is very highly regulated. Have they managed to weed out the few crooked doctors? Every day you read about a doctor going to jail for Medicare fraud, drug abuse, etc.

And has this legislation gotten rid of the "bad" doctors, the ones who butcher people? No way. Now, most all doctors are perfectly competent and honest. As are most locksmiths. But a bunch of legislation and investigation will not weed out the bad seeds. Human nature is such that there will always be a few people who try to take advantage of others.

So what would this proposed national registration accomplish? Well, first it will act as an additional tax against you. Believe me, the feds will charge you a fee to

process your application. Second, they will now have files containing the results of their investigation. Do you really want to invite this invasion of privacy? Finally, some of those guys they are trying to get rid of will inevitably fall between the cracks and will be issued licenses anyway.

Do not be deceived into thinking that locksmithing will be a better or more desirable "club" if you get a nice, shiny membership card in the form of a federal locksmith license. It won't help; but it will create lots more work for the paper pushers in the government.

I believe this is a terrible idea which could get a lot worse if it goes through. I also believe that ALOA truly and sincerely believes it to be in your best interest. I am sure they are doing what they think is best. But I hope I have shown you some reasons why this proposal should be discarded at once. ALOA has a lobbying firm in Washington on retainer. I believe they should find them something else to work on.

We will give ALOA ample opportunity to respond to this *Commentary* in an upcoming issue. But right now, I want to know what *you* think. That is the most important question of all!

Vote on this matter by using the Rapid Reply card in the rear of this magazine. Circle number 416 if you want to vote AGAINST a federal permit for locksmiths. Circle number 425 if you want to vote FOR a federal permit for locksmiths. Vote immediately so we can share the results of this important question.



Marc Goldberg
Editor/Publisher

July 5

Letters

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and lengths. Please address your comments, praise, or criticism to: Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Locksmith Edged Out By Car-Opening Granny

Dear Marc:

I have a story I hope you will print for our brother locksmiths.

Last Saturday night at 11:30 p.m. I got a call from a man saying he was locked out of his 1989 Nissan Sentra. When I asked him for his location, he told me and said, "Wait a minute. I will call you right back. Please stay by your phone." I did just that.

Five minutes later, he called back and said, "Nevermind. Thanks again anyway."

When I asked what happened, he said his grandmother opened it by reaching inside the small window opening he had left on the passenger side. He said he was skinny but his frail grandmother's arm fit in and pulled open the lock button.

I guess locksmiths shouldn't worry about the police as much as we should watch out for 90 year old grandmothers opening cars.

Leland Imm
New York

Reader Criticizes Magazine Professionalism

Dear Marc:

The National Locksmith has been a welcome guest in my shop since January 1983. But in the last couple years, I've observed a decline of professionalism in the editor's choice of presentation by having crude, if not obscene cartoons and profanity adding a bitter flavor to the magazine. What does it really communicate?

In the May 1990 issue of *The National Locksmith*, I read the Commentary, hoping to learn if I possibly needed a computer. All I got was anger served on a soapbox about computer salesmen and commercials, a couple hearsay testimonials, and the advice to research carefully. To research! That is why I read the Commentary. I still don't know if it is very practical to own a computer.

Let's be positive by lifting and enhancing our image. Publish a picture of the editor in a business suit instead of dressed for a picnic. Let's eliminate crude, non-descriptive, educational phrases like "lousy job, damn ads, sick and tired, who the hell, he's lying, and hate buying." Who's got time to wallow in anger?

The profession needs knowledge served with a breath of fresh air and when I read *The National Locksmith* or any other professional publication,

that is what I look for.

Leonard Downing
Oregon

Editor's Note: I do appreciate your comments and interest in the magazine. Your reference to the crude cartoon probably refers to the "Safe Sex" T-shirt advertisement. In the end, I agree with your point of view. We have declined to accept that ad ever again.

You said that my Commentary on computers didn't teach you anything about computers. But actually I was trying to communicate or show the experience of going to buy one. For many people, that is not a pleasant experience. That was my point. But last month's issue contained vast amounts of information on how locksmiths feel about their computers. Hope you find that instructive.

As to my attire in my photo, I am glad you have a high regard for professionalism. I am wearing a clean shirt with a collar in the photo. I just hate ties!

Repossessor Complains About Hurt Feelings

Dear Marc:

I was very shocked to read in the May issue, an extremely prejudicial statement that people engaged in a legal activity are crooks.

I cite the third paragraph, in italics and enclosed with parentheses, on page



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58 of the magazine. It is an article by Robert Sieveking. This paragraph refers to repossession and ends with the sentence: "If there were no crooks in the world, there would be no locks." This sentence is contained within the parentheses. A direct reference that repossession is crooks.

Repossession is legal in this country since the first settlers came here. Its legality traces back from our common law to old English common law. This common law Congress codified into Federal Statute known as the Uniform Commercial Code. I believe you will find it under Title 9-503.

I must take exception to Mr. Sieveking's uncalled for remarks. I also feel that I should point out, considering that this particular lock's security exists only in the mind of the uninformed, that had a repossession gone after those cars, they would have been gracing, not Mr. Sieveking's driveway, but the repossession's or the lender's lot.

Repossession is not crooks. You have vilified all repossession and we deserve a printed retraction. If you do not agree must I also point out that many locksmiths use their skills to repossess as a side line. Or, are they also crooks?

The question is, will we see a retraction? Or are we readers to expect racist remarks, sexist comments or slurs based on one's religious beliefs to appear in your magazine.

Carl A. Grandinetti, President
The Repo Depot, Iowa

Editor's Note: Racist remarks, sexist comments, religious slurs? Who are you kidding? Are you a repo man by way of national origin, gender or religious background? I doubt it?

Taking Mr. Sieveking's comments out of context caused you not to quote this sentence: "Give thanks to those from whose efforts we all profit." In other words, locksmiths are frequently called upon to repair damages caused by a repo man as well as damage by criminals.

Repossession is not illegal. We didn't say it was. We said repossession sometimes cause damage which locksmiths repair. They do. Naturally a repo man doesn't have time to take down a steering column while doing his job. Repossession usually use force, not finesse. We never condemned repossession for this.

My advice to you is: Don't be so sensitive. (And don't hold your breath for a retraction.)

Veehoff Supply Co. Helping To Save Planet

Dear Marc:

A letter has been sent to all of our suppliers to inform them that we will no longer accept any products shipped to us which are packaged in styrofoam. Any items received will be returned to the supplier at his expense.

If you are interested in preserving our planet, we suggest you tell your suppliers the same.

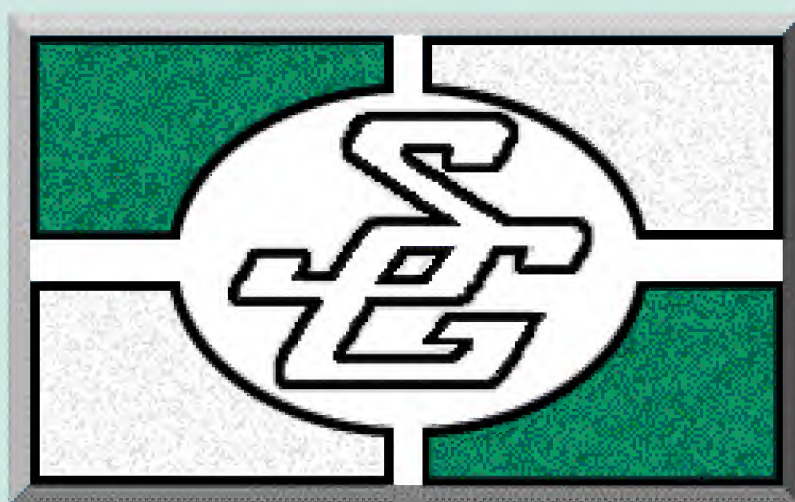
B.H. Veehoff
Veehoff Supply Co.
Iowa

Another View On Professional Appearances

Dear Marc:

This letter is in regards to the articles about professional appearances. I am a 24 hour, 365 day a year, on-call locksmith, residing in the state of "Taxachusetts." Other local locksmiths have found it necessary to lower their professional knowledge and rates for impressing foreign car keys to \$5 and service calls at 2 a.m. for \$10.

These absurd rates allow me to have extra free time on my hands which



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means that since I'm only an educated country boy, I've got horse stalls to muck out, geese and ducks in the pond to look after, chickens to feed, a two story barn that I'm building and completing myself and acres of land to clear by myself for horse paddocks.

Putting aside Chinchilla cages for my son, fish tanks and baseball card display cases and who knows what else he dreams up takes up some of my time. Then my wife comes up with post and rail fences to build and fruit trees in the orchard to be pruned.

Now when the police call me to open an automobile at one of the local shopping malls and it is snowing or raining out, the car engine is running with a baby locked in the car and the mother frantic, I don't have time to get dressed up in my dress pants, shoes and starched hillbillie shirt. I immediately go and professionally open the car. I will tell you that no one cares what I look like. So when a local business or police station calls me repeatedly, I figure I must be doing something right, most likely my job.

You should not worry about what someone looks like since you do not know where they've been or what they've been doing.

Why don't we see more articles on locksmiths who sell themselves cheap. Examples are road calls for \$10 and openings for \$5. My plumber won't come out for less than \$65.

John Clymer II
Massachusetts

Editor's Note: It's true, John, that in an emergency people won't care how you look at all. But if you normally wear the same clothes to muck out horse stalls and run service calls, your customers may be reluctant to call you a second time.

Professionalism isn't optional if you want to succeed in business. As for the price cutters you speak of, they are only hurting themselves. The most successful locksmiths I know are generally the most expensive. But they also are the most professional in appearance. Why? Because that is what the public demands.

McGunn Safe Company Claims Security Violation

Dear Marc:

Thank you for the publicity and exposure in your fine magazine.

I am referring, of course, to the article in your May issue that shows how to successfully drill open one of

our safes.

As many of your readers know, McGunn Safe Company has been in business for 50 years. Started by my dad in 1940, it has been under my supervision for the last 32 years.

During that time, we have always tried to design products that would provide our customers with the correct level of burglar resistance for their particular circumstance. We have always trained our sales people to help customers evaluate risks based on amount of money, visibility of the business establishment and loss experience data from similar customers.

Designers and builders of safes have always been challenged by burglars, the tools, and the technology available to them. Part of the success of the safe builder in providing his customer with a burglar resistive safe is dependent on specific information and knowledge as to where the locking pins, relockers and other vital lock areas in a safe door are located.

I realize your magazine and others like it are attempting to help the locksmith and the safe technician to perfect his trade and provide his customer with more efficient service if a lockout is the

Continued on page 178



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Technitips

Helpful Hints from Fellow Locksmiths



Send me your Technitips. Who knows, you may be our next winner! c/o The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Robert Sieveking

Congratulations to all those that find their Technitips printed here this month. Thank you for sending your tips. This month's tips are a good mix of automotive and general locksmith solutions. I'm sure you'll find something new, or of special interest. I hope you'll find a tip that might make your job a little easier, or solve a new problem.

Competition in the marketplace, is the one quality of the free enterprise system that allows it to grow and allows the businesses that exist within the system to prosper. Free competition means that there are no restrictions on where you can buy the products that you sell and no restrictions on who you can sell them to. The quality of the service you give your customers will determine whether or not they allow you to continue in your business. If you satisfy the majority of them, your business will grow. All business, from manufacturer

to the wholesale distributor to the locksmith on the street relies on the repeated business of "satisfied customers" for their very existence. This is not just a lot of public relations, but honestly serving their customers with a steady stream of good service. In the words of L.L. Bean, "Sell good merchandise at a reasonable profit, and treat your customers like human beings, and they'll always come back for more."

Win a VATS Decoder From All-Lock!

Each month, All-Lock will award one of their A-7000 VATS Decoders to the best automotive Technitip submitted this month. If you would like a chance to win a free decoder from All-Lock, simply submit your automotive tip exclusively to *The National Locksmith*. Tips submitted to other publications cannot be considered.

All-Lock's A-7000 makes it easy to diagnose system failures, service the column and select the correct key blank. This sophisticated tool is easy to use and is completely portable. Long wire leads are easy to use in cramped automotive situations.

Submit your tip, and win today!



How can we look into the mirror, to get a good look at what we're doing right and also what we need to improve? How do you start a small business in a basement or the back of your garage when the world is already full of big operators? In this country, there are many states that allow you to complete a locksmith course and start your own business without a permit from the state or the blessing of some unseen power. The simple desire to give good

How To Enter

All you need to do to enter is submit a tip, covering any aspect of locksmithing to *The National Locksmith*. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: Robert Sieveking, Technitips' Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

Tips submitted to other industry publications will **not be eligible!** So get busy and send in your tips today! You may win cash, merchandise, or even one of many key machines or code book sets! At the end of the year, we choose the winners of the listed prizes.

Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1990? Enter today! It's a lot easier than you think!

Every Tip Wins 'Locksmith Bucks!'

Yes, every tip published wins a prize. But remember, you must submit your tip to *The National Locksmith* exclusively. Each and every tip published in Technitips wins you \$25.00 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from *The National Locksmith*. You also receive a Bonded Locksmith bumper sticker, decal and patch. Plus you are now eligible for the really big prizes!

Best Tip of the month prizes!

If your tip is chosen as the best tip of the month, you will win \$50.00 in cash as well as \$35.00 in Locksmith Bucks! Plus you will receive a quartz Locksmith watch, a Bonded Locksmith bumper sticker, decal, patch and a Locksmith Cap. Plus, you may win one of the annual prizes.

service, at a fair price, and treat your customers like human beings will almost always guarantee your success.

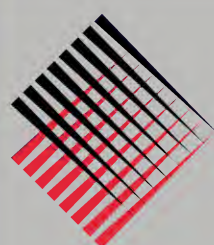
When faced with a new customer, listen so that you can understand what they are asking for, then respond to their need in the way you would like someone to respond to your needs. Customers know when they are talking to someone that has a genuine interest in solving their problem. They also know when they're being nosed into the chute. After offering a solution to your customer's problem, ask your customer, "Does this sound like the best way to help you with your problem?"

Establish a clear and realistic picture of what "superior" service should be, then insure that your customers receive nothing less. Communicate your ideas and wishes to all your employees. Set the level of excellence you expect your employees to deliver to your customers. Every employee must understand how vitally important the customer is to the business as a whole. "Yes-Sir," "No-Ma'am" and "Thank you very much for the business," are the golden words that bring customers back for more. It's not just the words, but the attitude that prompts the words, that makes the difference between "good service" and

"superior service."

Hire good people and train them carefully. Even if you work alone, take advantage of the courses offered at the ALOA convention and attend your local association meetings. Correspondence schools offer special courses in safe and safe deposit work. There are many good books on all phases of lock work that you should have in your library. Buy and study them. Subscribe to the trade journals, and "study" them faithfully. It is your duty, as a craftsman, to keep up with the rapid changing service needs of the lock and automotive industry. You can't know everything, but the more you know, the better you will be able to satisfy the needs of your customers. Freedom to compete, is what keeps the old shops on their toes and what allows new shops to start and grow. Compete and prosper.

Oh, and I almost forgot. Send more Technitips. You just might win a new key machine or a set of the best code books on the market. At the very least, you can get locksmith bucks to buy books to become better qualified to compete. If you don't compete, you can't win.



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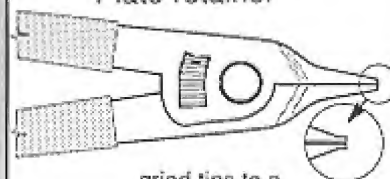
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July's Best Tip

This Technitip is for the modification of external clip ring pliers to make removal of the GM lock plate retainers easier. Removing the lock plate retaining ring has always been a problem, but the ring spreader shown in illustration one will make the job a little easier. The

Salvaged True-Arc pliers
remove GM Lock
Plate retainer



grind tips to a
"flat" point

Illustration 1

tool was made from a pair of external True-Arc pliers, the type that spread the tip as the handles are squeezed.

By grinding the tips to form a "flat" point, as shown, the tool will easily fit between the ends of the retaining ring to spread the retainer as the handles are squeezed. The retaining ring can then be easily slipped up, over the shaft of the lock

plate compressor with the help of a small screwdriver. The "flat" or "duck bill" shape of the spreader point, is the trick that makes this tip work.

Juanita Ramsey
Texas

Automotive Tip of the Month

This tip is the winner of the All-Lock A-7000 VATS Decoder. All-Lock will award a decoder to the best automotive tip each month of the year.

It never fails. We learn how to do something, and somehow they change the lock so the method no longer works. Briggs came out with VATS, and a year later they changed the length of the key, so the old keys won't work. They came out with an interrogator-substitution box, and now you have to buy a special wiring harness to adapt the interrogator to this year's car. What next?

This Technitip is for the VATS

Simplified V.A.T.S. Key Substitution

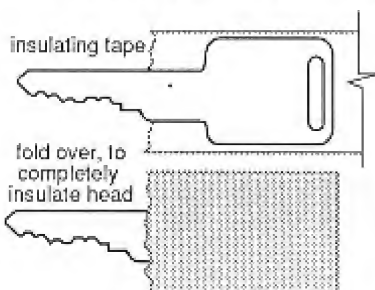


Illustration 2

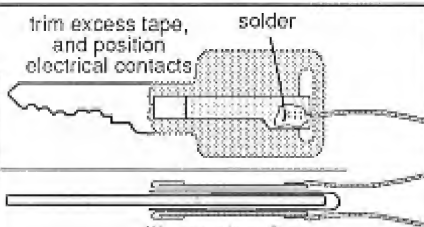


Illustration 3

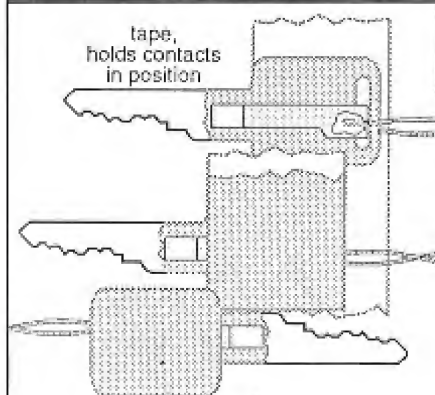


Illustration 4

equipped car, regardless of year. Rather than trying to disassemble the "48 way" connector, and insert some type of "adaptor/extender" into the circuit, why not make a key with a variable resistance pellet? It makes no difference whether or not you can break into the wiring harness. All you need is the proper resistance between the contacts of the ignition lock. The illustrations show how easy it is to make a key that will allow you to substitute resistances at the lock without removing it.

The first step in any procedure is to make a working mechanical key. The code has, "up to this time," been found on the ignition lock. Make a mechanical key over a "slave key" blank (B&S

#321631, Ilco #P1098AV, or Curtis EZ number B-62).

After the "slave key" has been made, insulate the head of the key as you see in illustration two. The tape must cover the portion of the key that will carry the electrical contacts. Use a thin tape, to avoid making the contacts too fat to enter the lock. Trim away the excess tape, and position the electrical contacts on the blade of the key as you see in illustration three. You will notice in the auxiliary view of illustration three, that the contacts are positioned on both sides of the key. Wires have been soldered to the brass contact strips to insure the best possible electrical contact. *You must solder the wires to*



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the contacts to make this Technitip work. The wire should be about 18" long.

In illustration four, a second piece of tape is used to hold the contacts in position on the blade of the key. The key is now ready to be used in the car. The ends of the wires can be connected to a resistance substitution box or to the connection on your VATS interrogator. Simply dial in the resistances for the 15 possible keys, one at a time, and try to start the car each time. Of course, you will have to wait four minutes between each try but you will be able to start the car when the proper resistance is placed across the wires of the "slave key."

The resistance values of the various keys have been published, and should not be hard to find. If you are not thinking of purchasing a VATS interrogator, you might think about purchasing resistors and alligator clips for your tryout resistances. Of course, it is best to have the interrogator: have the tools to do the job right.

If you find that you don't have the correct VATS key in stock, this tip can be used to make an emergency VATS key, until the correct one can be ordered.

Rick Wilkinson
Utah

I would like to offer two Technitips that I've found very useful.

At times we are asked to change a number of safe combinations at a single location. It can be quite hard to originate all the combinations and guarantee that there are no similarities or relationships between the numbers of the combinations. This problem was solved with a Radio Shack personal Lottery Master. It generates the numbers for the combinations. Now we can, "absolutely guarantee" that our combinations are randomly selected, original and unique. (By using the Lottery Master to pick safe combinations, it becomes a tool and is therefore tax deductible.)

My second Technitip is a hockey puck. What I mean to say is that my Technitip is for a new use for the hockey puck. We use it as a soft anvil. When installing or clinching GM replacement cylinder caps on cylinders, the hard rubber material will not scratch or mar the finish of the cap. The puck can also be used to cushion the blow of a hammer or maul, when used to jar the door of a safe or vault, preventing damage to the finish of the door.

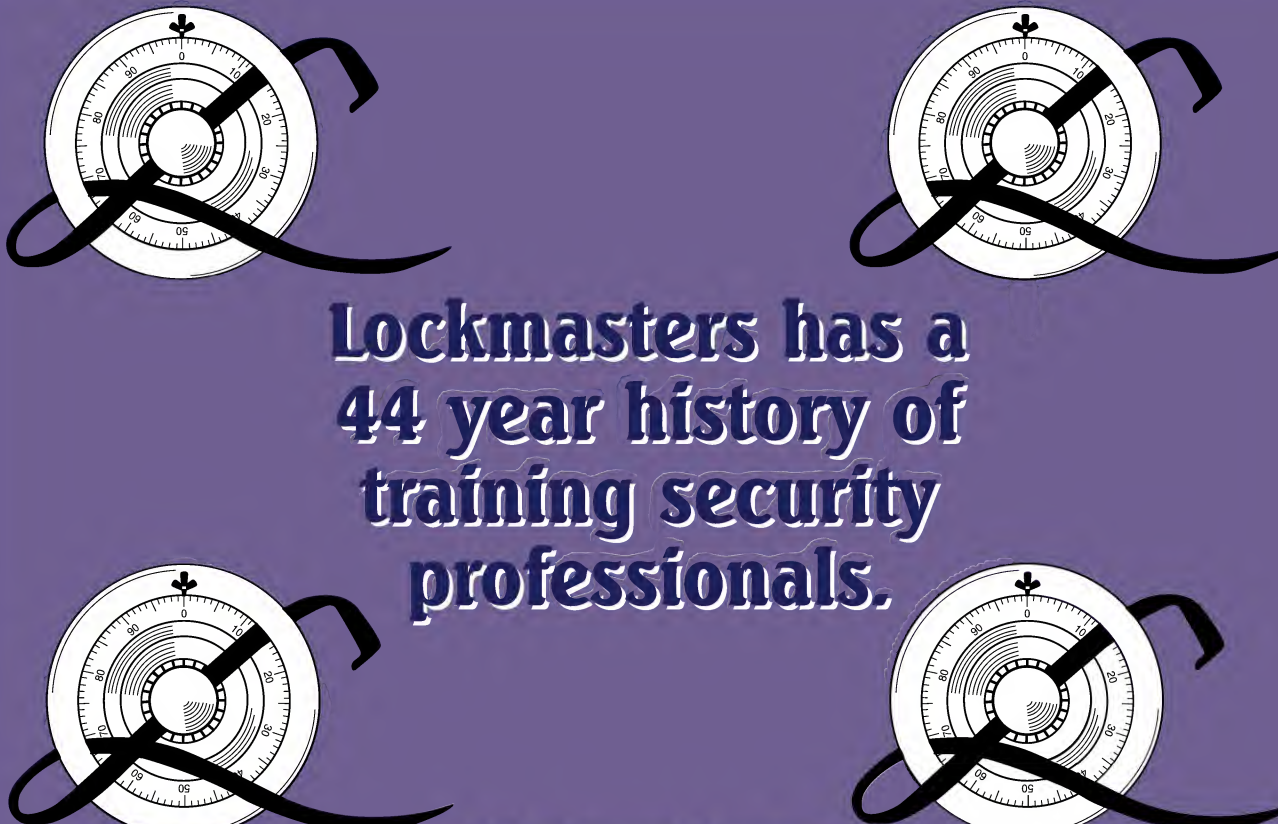
Timothy S. Boyea
Wisconsin

I recently had a call to repair the ignition of a GM auto equipped with the new Steadfast security collar. The hardened steel collar, shown in photograph five, protects the car from would-be thieves by preventing the ignition from being pulled or the column broken away to expose the steering wheel locking pin and electrical switch actuator. The Steadfast collar is a real security improvement, but it is almost impossible to get one off if the ignition lock fails. The steel roll pins are driven into blind holes, from one side of the collar.

The tip on removing the collar is to



5. The Steadfast hardened steel collar.



Lockmasters has a 44 year history of training security professionals.

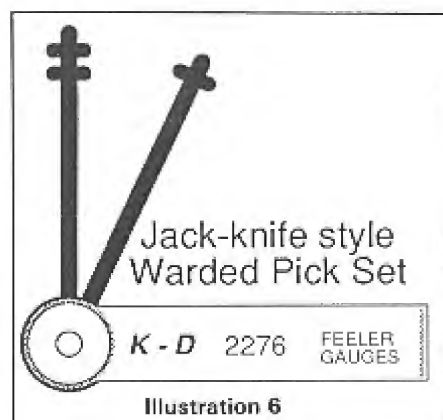
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drill into the roll pins. There are four across each seam, far enough to pry the armored seam guard up and separate the halves of the collar. The seam guard is hardened to prevent drilling, and the roll pins will eat a few drill bits, but they can be drilled out. After the collar is removed, the roll pins can be removed and the seam guard separated from the left half of the guard. Repair the ignition lock and reinstall the collar using new roll pins. I have seen the Steadfast collars on Jeep, General Motors and some Chrysler columns.

Larry Thompson
Arkansas

Editor's Note: A repair kit for the Steadfast security collar is available. The kit includes instructions, roll pins and new seam guards. The easy way to remove the collar, is to grind the seam guard to drive out the roll pins, then replace the seam guard. This unit is becoming common enough, that it would be wise to stock a couple of repair kits on your truck, and invest in a good die grinder. Your Dremmel grinder may prove too light for this job.

While searching for a way to conveniently carry my warded pick set, I chanced upon the idea of using the body of a Feeler gauge set, from a surplus supplier. The chrome body and large knurled lock nut were exactly the right size to accept the set of warded picks. (See illustration 6.) The Feeler



gauge can be purchased for about a dollar. Simply remove the feeler shims and replace them with your picks. What could be easier?

Thomas J. Keeley
Massachusetts

Recently, we had the opportunity to recombine a large number of American 7000 Series tubular keyed padlocks. Because of the scope of the job, and always looking for ways to "streamline"

our operation, I decided that a special tool for unloading and loading the pin stacks *individually* would make the job go faster. This Technitip is for just such a tool. With this tool, you can "dump" one chamber of pins at a time, or load them just as easily.

This tool was made from an Ileo 137 "brass" blank. Cut or file away the turning key, as you see in illustration seven. Drill the threads out of a 3/8" brass nut and silver solder it over the barrel of the key as shown in illustration eight. Be sure to solder the handle of the key to the barrel, otherwise the key will come apart when the turning lug is

removed from the inside of the barrel.

After the nut has been soldered in place, dress it round. Remove the turning lug from the inside of the key with a hand grinder. This will allow the tool to turn on the nose of the lock to select the chamber to be emptied. The last step is to "hand file" a narrow rounded groove into the side of the tool as you can see in illustration nine. The groove is slightly tapered, to allow pins to be loaded more easily.

Containing all the pins, as individual chambers are changed, has always been a "balancing act" with Ace tubular cylinders, but this Technitip should

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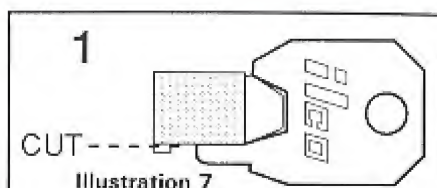


Illustration 7

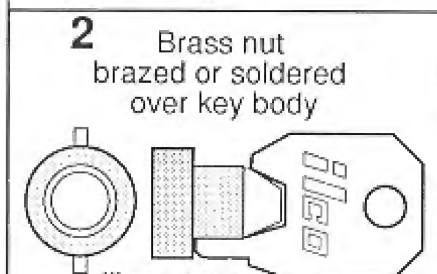


Illustration 8

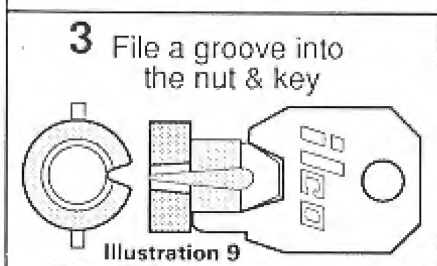


Illustration 9

make changing this type of cylinder a little easier for us.

Don Probasco
Texas

Here is a little tip on how to pick a Weiser E530D entry lockset. Picking these locks in the normal manner will get you nowhere. The cylinder can be picked and will turn, but the lock will remain locked and the latch will not retract. Here's the solution to opening one of these locks.

Cut a six pin blank down to clear a #9 depth, all the way to the end of the blank, as you see in illustration 10. Pick

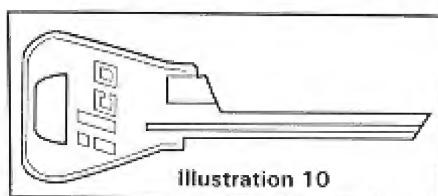


Illustration 10

the lock in the usual manner (to the right). Turn the plug as far as it will go to the right, using a tension wrench. Insert the cut down blank into the plug, and push in as you turn the plug back to the left. The latchbolt will retract and the door will be opened. The lockset will not be unlocked, so push on the door as the key is turned.

Carry this "pick key" in your pick case to keep it handy.

Bill Hatfield
Arkansas

This Technip is for an alternative method of fitting a key to the VATS

equipped auto when you are unable to use the VATS decoder/substitution box because of the special adaptors required by some newer autos. The first step is to disassemble an old ignition lock, as you see in illustration 11. This will allow you to use the cylinder as a turning wrench to actuate the starter, while the VATS ignition is out of the column.

As you begin your job, remove the ignition lock as you would for any other GM column. Remove the VATS ignition carefully, and allow it to hang by the electrical wires. Do not disconnect the electrical wires, but insert an uncut #1 VATS key into the ignition lock.

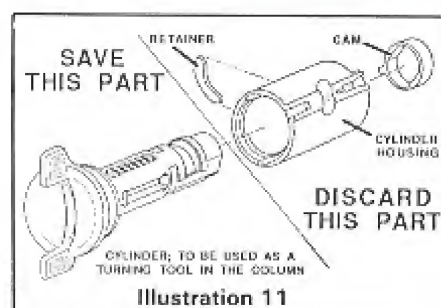


Illustration 11

This will complete the circuit for the electronic portion of the anti-theft system.

Insert the turning tool into the column, and try to start the car. If the car starts, cut a #1 VATS key by the

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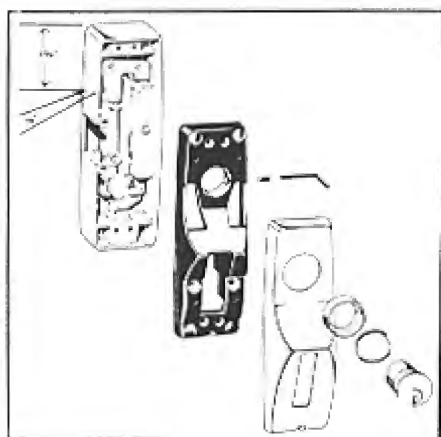
mechanical code stamped on the ignition lock. If not, wait four minutes and repeat the process using a #2 VATS key. When the proper key is inserted into the VATS ignition, the turning tool will start the car. Be careful not to stretch or break the wires to the ignition lock. Assemble the column and check the new key for proper operation to complete the job.

This method does not require the electrical harness to be disassembled, removed and replaced or flexed, which might cause or aggravate other electrical problems in the car.

Jim Cooke
Arizona

This Technitip concerns the Corbin double cylinder emergency exit device. With this particular unit, we find that it is only possible to remove the inside (function control) cylinder when the unit is in the unlocked position and the outside thumb lever is depressed. The screw which secures the weight and function control lever often comes loose, making it impossible to place the mechanism in the unlocked position and therefore impossible to remove the lock cylinder. To overcome this problem, proceed as follows.

On the latch side of the active head (see illustration 12), measure down $1\frac{1}{8}$ "



from the top of the unit and out $\frac{3}{4}$ " from the face of the door. This will locate the hole necessary to free the unit. Carefully drill a $9/64$ " hole through the case at this point. Using a thin rod or long allen wrench, lift the function control lever up, by one of the lugs. If it is not fully disconnected, it may be released by pushing inward with the allen wrench. Hold the lever up to unscrew the lock cylinder and disassemble the mechanism.

When reassembling the mechanism, use a little Loctite (242 BLUE) removable thread locker on the function con-

trol lever mounting screw to prevent this problem from reoccurring. Plug the hole in the lock case with a #8 \times $\frac{1}{2}$ " self tapping screw.

A large amount of the locksmith's time at the University of Alberta is spent performing planned maintenance on this type of lock. This method had been found to be the fastest and least destructive means of disassembling the Corbin lock with this problem. I have passed this information along to the local locksmiths and I thought it might be of interest to your readers also.

Graham Watts
Canada

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News-makers

New Products and Industry News

Newman Tonks Acquires New Hardware Companies

Newman Tonks, Inc. has recently acquired five companies to be added to its other holdings. The companies are Falcon Lock, Harloc Products Corp., Normbau, Inc., Quality Hardware Mfg. Co. and Harvey Hardware. These are some of the oldest companies in the hardware business.

The companies join Newman Tonks' other U.S. holdings which include Monarch Hardware and Monarch Door Controls and Rothley Brass.

Newman Tonks encourages autonomy among its subsidiaries, so each new acquisition will maintain its own identity. The companies and their customers will benefit from the Newman Tonks corporate philosophy and the now-extensive product line in contract hardware from exit devices and door controls, to individually designed nylon hardware systems and quality door hardware, locks and levers.

The Newman Tonks company can meet the complete needs of contract and hardware specifiers to retail and wholesale hardware. More information and free catalogs on any of the Newman Tonks companies are available to locksmiths.

McGunn Safe Company's New Vending Safe

McGunn Safe Company introduces a new cash controller burglary resistant, access safe that "vends" pre-packaged currency on a timed basis to deter robbery.

This large volume, easy to use, and trouble-free safe has room for storing cash tills, a vending unit for access to currency, and a separate inner locker to minimize access to cash and eliminate the temptation of break-ins.



The locking and control feature options of the unit include special user codes and computerized audit trail to deter employee theft. Also included is time controlled access and interface capability with alarm, security, camera and PC computer systems.

Circle 319 on Rapid Reply

Dexter by Master Lock's Customer Purchase Deal

In conjunction with the ALOA show, Dexter by Master Lock is offering locksmiths a special money clip and ten dealer dollars which can be redeemed on the next Dexter order.

Locksmiths will receive the free clip in the shape of a Master Lock padlock key and ten dealer dollars with every \$400 Master/Dexter order that includes at least 25% Dexter products. The order must be placed between July 13 and September 15, 1990.

To redeem the dealer dollars, locksmiths simply send the certificate for \$10 along with a copy of the invoice for the next Dexter order to Dexter by Master Lock before November 1, 1990.

Dexter offers a broad range of door hardware including quality door handles, deadbolts, levers and knobs and accessories such as mail slots and address numbers. Plus, the Dexter Designer Series combines solid brass construction with upscale fashion.



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JS Products' Bend-A-Light®

JS Products, Inc. introduces the Steelman™ Bend-A-Light® Micro Pro Model #10200 to the professional locksmith market.

The new Bend-A-Light® Micro Pro is a flexible high intensity light tool for use by the safe technician or locksmith and is the thinnest high intensity light currently available.



The new unit comes with 2-AA batteries and features a 10" long 1/8" diameter flexible brass alloy shaft, ultra bright 1/8" diameter "grain of wheat" lamp, (which is replaceable) and an extension cover. It has an overall reach of 27".

Steelman™ Bend-A-Light® also comes in three sizes, and is available in a kit with two magnets (it doubles as a magnetic pick-up tool), and also includes an extra pocket flashlight with extension mirror.

ACSI's New Lock Modification

Series 1500 lockmods from Architectural Control Systems Inc. (ACSI) enable distributors to minimize modification costs on virtually any lock and provide state-of-the-art access control.

ACSI's U.L. listed Series 1500 lockmods are suitable for any door access situation and offer fail safe and fail secure control modes to ensure reliable access control and security.



The lockmods are fully guaranteed and offer cost-effective and convenient alternatives to manufacturer modification. As a single-source provider, ACSI enables distributors to modify new and existing inventories quickly. Access monitoring is also available.

Circle 321 on Rapid Reply

Continental Instruments' New Cypher Brochure

Continental Instruments Corp. released a new product brochure on Cypher Lock.

The full-color, four page brochure is a condensed, improved version of the eight page, two color brochure which is presently in the three ring binder catalog and highlights Cypher Lock's many outstanding features in a more clear and concise manner than the previous brochure.

Cypher Lock is a single-door electronic combination lock that is simple, affordable and reliable to use.

With new color photos and clearly defined options, this new brochure directly ties into Continental's current Cypher Lock promotion plan which includes increased advertising for the product and direct mail promotions.



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Detex Corporation's New Access System

Detex Corporation introduces an economically priced single door access control system that provides either card reader or keypad control.

The DS-1916 card reader model has a 512-card capacity and 16 issue levels and an LED indicates the active/inactive status of each card. The user-friendly unit offers easy card programming, in or out of the reader.



The DS-1915 keypad model can accept up to 20 active access codes which are changeable at the keypad and the code lengths can vary from one to nine digits. Similar to the key reader model, the DS-1915 features an LED, indicating the active/inactive status of

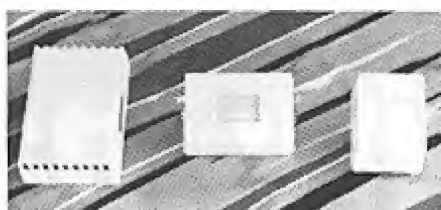
each code.

Both models feature programmable strike times that are variable up to 255 seconds and the units can be surface or flush mounted. They are provided with Detex's one-year warranty.

Circle 326 on Rapid Reply

Rodann's New AV-100 System

Rodann Electronics Manufacturing Company is introducing its newest door alert passive infrared system. The Rodann AV-100 is designed to welcome customers or clients with a pleasant sounding chime and prevent unannounced entry.



This unit holds up to four chimes and requires no adjustments or maintenance. The unit is ideal for office or business convenience and protection.

For more information call 1-800-366-7010.

Code-Alarm's Intercept System

Code-Alarm offers a system that will track a vehicle to pin-point its location, advise the police and should Code-Alarm together with the authorities decide it is necessary, kill the engine and sound the alarm through remote control.

When the alarm is activated, a required cellular phone automatically dials Code-Alarm's monitoring station to report the car's location which is determined by the Loran receiver. Only after the monitoring station determines the exact location, Code-Alarm will alert the police.

With the Intercept System, Code-Alarm incorporates the pre-existing cellular telephone and Loran C networks in its recovery system at no additional cost to the government and is offered through Code-Alarm's current dealer network and authorized representatives.

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Se-Kure Controls' New Catalog Available

A new 24-page, full color catalog #190 is available from Se-Kure Controls, Inc. in conjunction with Se-Kure's twenty-fifth anniversary.

This new catalog features Se-Kure's popular and new products. "State-of-the-art" security devices are featured throughout the catalog with many of them designed by Se-Kure personnel to meet the growing demands to protect a store's valuables.

Each product and/or product category is completely described by its function and construction, is fully illustrated and includes valuable installation and other helpful information.

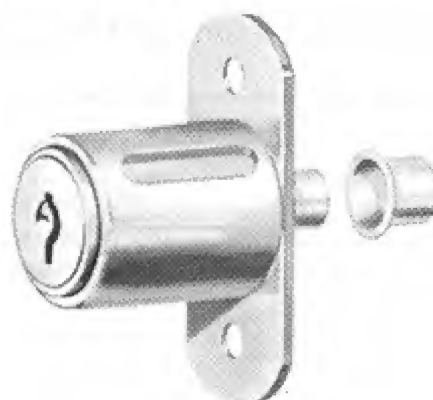


Circle 350 on Rapid Reply

National Cabinet Lock Adds To Door Lock Line

National Cabinet Lock adds a new 1" cylinder disk tumbler sliding door lock to its Stock Locks® line.

The lock is available in a dull chrome finish and features plunger action and keys together with other National disc tumbler locks.



Circle 205 on Rapid Reply

Underwriters Laboratories' New Product Category

Underwriters Laboratories Inc. has created a new product category to cover residential security devices purchased by consumers to protect their

property.

This new category is established to recognize the increasing popularity and use of limited security devices not previously covered by UL requirements for household burglar or fire alarm systems.

The devices included in the category are electronically and mechanically operated security devices, which include door chains, locking devices and individual door alarms.

Circle 204 on Rapid Reply

Monarch Hardware's New Hardware Device Lines

Monarch Hardware offers the most extensive line of exit and panic hardware that is engineered to meet the demands of high traffic installations and is available in a wide range of colors and finishes including aluminum, brass, bronze and stainless.

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Car Opening Tips

"I think most of the problems could be solved by working on the rear door. This is better than working on the side doors because they seem to be more problematic."



Send your car opening questions to: Shirl Schamp, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Shirl Schamp

The Chevrolet Lumina, made by General Motors Corporation, uses the same key-making process as other GM cars. While the steering wheel pulls and replaces the same, making a door key could possibly present some problems.

I think most of the problems could be solved by working on the rear door.

This is better than working on the side doors because the side doors seem to be more of a problem when removing and replacing the lock than if you use the rear door. Remember rules are of a general, not a specific nature, and even if you find these things not to be applicable, that does not mean they are wrong.

The only thing I'm going to write about the Lumina, is the opening technique and armrest removal. When removing the armrest, do not look for screws because the armrests on these cars are connected to the door panel only with snaps or basically clips. To remove these, place a screwdriver between the armrest and the panel.

Now, pop the armrest loose. (See photograph 1.) I know this sounds extremely simple but sometimes it can



1. Removing the armrest on the Chevrolet Lumina.



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be a time-waster.

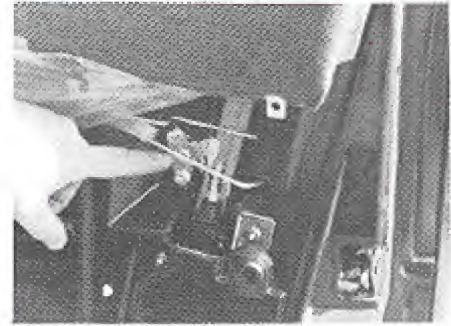
Added knowledge, beyond what is required for other vehicles, is needed to unlock the Lumina. First wedge the glass from the door by inserting a wedge between the door itself and the glass. This should provide sufficient working area, with the minimum amount of difficulty.

Next, insert a wedge to maintain the space and insert a Slim Jim or Super Jim bowing inward. Your objective is to slide past the window track, and contact the bellcrank attached to the power plunger on the inside position of

the track. (See photograph 2.) If this is done correctly, the tool will come down on top of the bellcrank. Then push down and pivot the bellcrank while opening the car. (See photograph 3.) Try to stay close to the inner wall or the backside of the panel. This will be necessary while performing the sequence, since you want to go between the track and the panel.

Next, we will be describing the entire opening process of the 1987 Honda Accord.

The first thing to do when you arrive at the scene to make keys, would be to



2. Contacting the bellcrank on the inside of the window track.



3. Push down and pivot the bellcrank while opening the car.

unlock the car. To unlock the car, you must "evaluate your situation." This involves checking to see if the locking unit is on the armrest or the panel, making it horizontal. If the button is on the sill just outside a window, the lock is vertical. You can use these evaluations to immediately determine which tool you are going to use when opening the door.

By inserting a wedge between the glass and the door and spreading them apart, you will get a little more freedom to move around while working. We used a Super "J," a Slim Jim with an extreme bend on the end, to insert into the door bowing inward.

On some cars, this process could be difficult if there is a ledge on the bottom of the glass. If that is the case, first insert a regular Slim Jim bowing outward into the door. By using a Slim Jim for a slide, slide the Super "J" into the door. Then remove the regular Slim Jim and proceed. (See photograph 4.)

Slide the Super "J" against the vertical

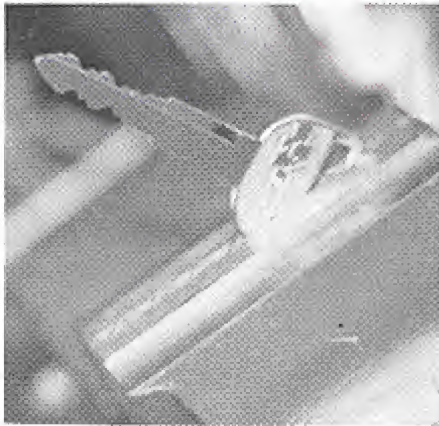


4. After inserting the Super "J" into the door, remove the regular Slim Jim.



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5. The 1987 Honda Accord's key consists of eight positions cut on both sides.

rod (button linkage) and pull upward. Since the Super "J" has the small notches on the side of the tip, the notches will slip over the linkage and bind as you are pulling upward. If you are experiencing difficulty with this method, you might find it easier to move to the other side of the linkage between the button and the center post, and grab it from there.

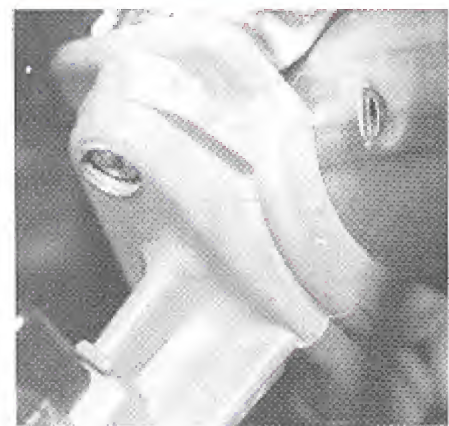
On the 1987 Honda Accord, the key blank required is Iico X181. The key consists of eight positions with each position cut on both sides of the blank. (See photograph 5.) It appears that the



6. Remove the screws securing the shroud to expose the lock assembly.

completed key is a "convenience key," with the ability to be inserted in either direction. But that is only partially correct since the key is the "convenience type." Hondas, containing eight wafers, have a true double-sided lock. The wafers alternately come in from opposite sides.

An example is the 1987 Honda Accord. The code on this car is 3699, which will give you cuts of: 12231231. The spacing and depths on this key are as follows. Spacings: 1-.098; 2-.197; 3-.295; 4-.394; 5-.492; 6-.591; 7-.689; 8-.787. Depths: 1-.276; 2-.244; 3-.213.



7. The last four digits of the number on the yolk will be the code.

On most of the Hondas, except for the models in the last two years, the code number is easy to obtain from the code location on the yolk of the ignition lock. Unscrew the screws that secure the shroud, (see photograph 6) and drop the bottom portion of the shroud to expose the lock assembly.

Look on the side of the yolk next to the column where the yolk goes around the column. You will then see a long number which you might have dismissed for an unsuitable code. But, the last four digits of this number will be your code. (See photograph 7.)

Continued on page 180



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Servicing Emhart Cores

"It is a locksmith's lock because it is fully field serviceable, although the high security pin kit is required. It also gives picking and drill resistance."



by Don O'Shall

The Emhart Interlocking Pin Removable Core is a very unique interchangeable core lock and is fully interchangeable among Corbin and Russwin products. It can be incorporated into an existing system, System 70 depths required, to provide higher security for certain areas.

Although a few large institutions are

using it, it is not a lock the average locksmith encounters on a daily basis. It is a "Locksmith's Lock," because it is fully field-serviceable, although the high security pin kit is required. It is also able to provide UL approved picking and drilling resistance for existing Corbin and Russwin masterkey systems.

At first glance, this core resembles standard interchangeable core products used by Corbin and Russwin. But a closer look will reveal that the core sleeve covers only two pin chambers (2 and 3) instead of covering four pin chambers (2, 3, 4 and 5). Though the other chambers will use the interlocking pin for maximum security, these two chambers affecting the control sleeve

must use standard pins.

Illustration one shows the plug from the core. Note that the second and third chambers use standard pins. There is no slot cut into the plug in these positions as there are in the remaining positions.

The basic operating principle involved in the high security chambers is as follows: The driver, master pin and bottom pin interlock to virtually form a single unit. Both the driver and the master pin have a T-shaped projection on the bottom surface, while the bottom and master pin both have a T-shaped slot cut into their top surface. (See illustration 2.)



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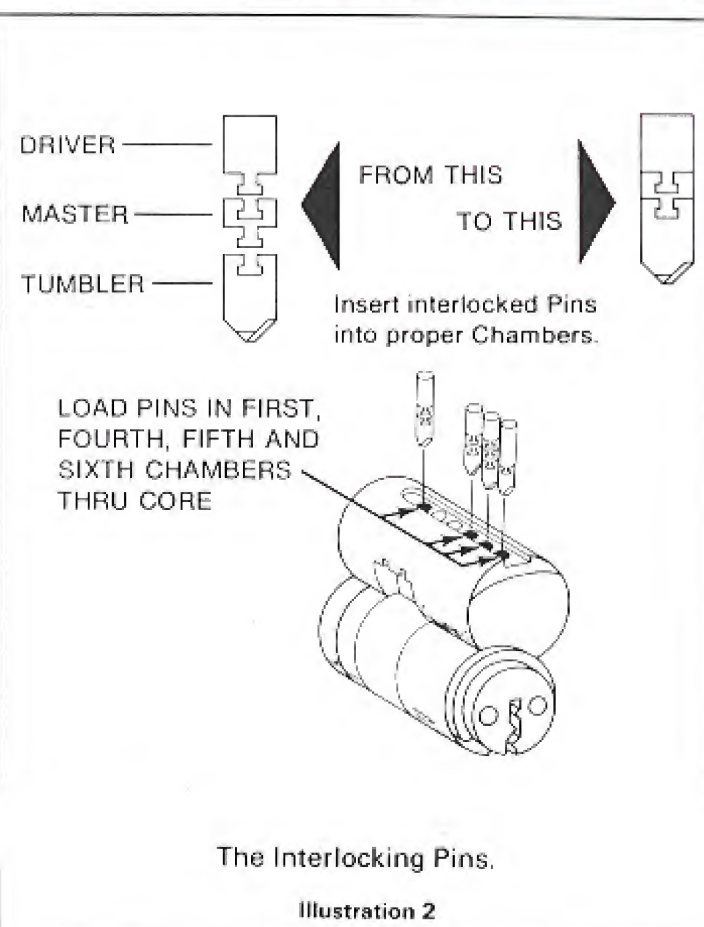
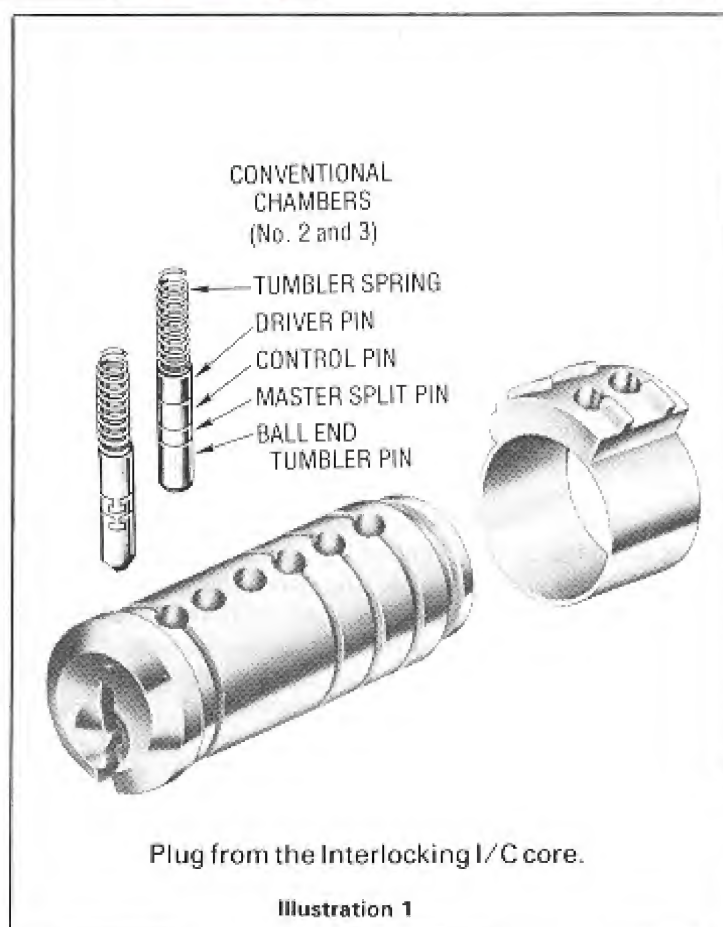
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In order for the key to operate the cylinder, it will have to raise each of these pinsets allowing them to line up at the shearline, similar to a standard lockset cylinder. It must also rotate the pinsets so that the T-bar on the bottom of the upper pin at the shear-line is lined up with the grooved slots on the plug itself, allowing the pins to separate. The upper pin can be either a driver or master, depending on which key has been inserted.

This cylinder uses a left and right "skew" or angle. It does not use a center angle. When holding the key with the bow in your left hand and the tip is to your right, the cuts which go away from you toward the left are called left angles. They are referred to as the (1) skew. The cuts which go away from you to the right are called right angles or (2) skew.

Masterpinning calculations are done in the following sequence.

Calculate the bottom pins required for each high security chamber by finding the smallest depth of cut in that position between the master and change keys but only consider its depth for the calculation, not its skew. Once the smallest depth is found, the bottom pin will simply adopt whatever skew it uses.

One key used a 1(2) and the other used a 3(1), and since the one in the first position is smaller than the three, this chamber would then use a #1 bottom pin. Since our key with the #1 cut used a (2) skew, the bottom pin will also use it.

Calculate the master pin length by subtracting the smaller cut from the larger. Using our number from the example above, the difference between a 1 and a 3 cut is 2. Our master pin length would be two.

Calculate the skew for the master pin according to the following formula: if the two keys both use the same skew angle, use a (3) angle master pin. If they are different, use the skew angle to match the deeper of the two cuts.

By using our numbers from above, the cuts are a 1(2) and 3(1). Since the 3 cut is deeper and, and the two cuts use different skew angles, we will then use a (1) skew to match the 3(1) cut.

Finally, we must determine our driver pins. This is simple. If the total of pins for a particular position adds up to 5 or 6, we will use the #4158 driver pin from the kit. If it is less than 6, we will then use the #4193 driver pin.

The above four calculations for each of the chambers using 1, 4, 5, and 6 high security pins can be repeated. The pins

must be interlocked before they are put into the lock core.

Calculating the pins necessary for the two "standard" pin chambers is equally simple. The calculations are as follows:

For the bottom pin length, compare the cut depths between the masterkey and the change key. The bottom pin will match the smaller of the two.

An example for this is if the cuts on our masterkey were 2 and 4, and the cuts on our change key were 1 and 6, by considering only the two non-high security chambers, the smallest for the first standard position would be the 1 since it is smaller than the 2. The next position would be a 4 since it is smaller than the 6. Thus the bottom pins would be 1 and 4.

For the master pin calculation, subtract the smaller of the two pins and the larger of the two.

In our example, we had a 1 and 2 cut, giving us a difference of 1. A 4 and 6 cut in the next position gives us a difference of 2. The masterpins for these two chambers would be 1 and 2.

Next we calculate the control pins required, by comparing the control key cut for this position with the deeper of the two cuts for each of these positions.

By using the example, the smaller between the masterkey cuts and the change key cuts were 1 and 4, so the deeper of the two would be 2 and 6. We will compare the two with our change key cuts for these positions. By assuming a number 4 cut for both of these positions on the control key, we would be comparing the control and deepest cuts.

Control Cuts:	4	4
Deepest Cuts:	2	6
Difference	2	2

Where our control key is deeper, the pin will be a plus pin, and where it is smaller, the control pin will be a minus pin. For our example, the pins required

would actually be: +2, -2.

If the depths were the same, the difference would be zero, considered neither a plus or minus. *This should be avoided in high security cores and should not occur in factory systems.*

When the cuts are the same, the zero control pin is used. The pin is the same thickness as the control sleeve, meaning that the same cut is lining up the pins at both the operating shearline and the control shearline simultaneously. This is not recommended since it could permit either indiscriminate core pulling errors, or worse yet, a free-swinging control sleeve.

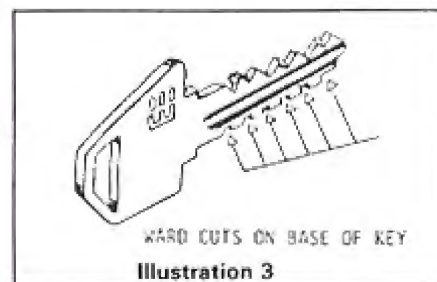
It is easy to see that this is not the case in our example since we ended up with a +2 and -2 control pin. Less obvious, is that the control cut for the

third position is a four. The keycut for the shallower of the two keys is also in that position. This would give us the same type of risks for different positions.

To avoid this, the control key cut should *not* match either of the cuts for these positions from either the masterkey or the change key. An even better solution in original systems is to avoid "masterkeying" these two chambers at all.

You can still get 3,125 possible change key combinations on a single keyway by using the same cut for the masterkey combination and all of the change key combinations for these two positions. A *completely* different number for the control key cuts is now available.

For the driver pins for these two positions, use a driver to match the control key number for each of the two positions. It is important to note here that for our high security positions, the control key must use the same cuts as the highest masterkey in the system. In order for the key to turn completely, it will be necessary for it to bypass the T-bars projecting into the plug. This is accomplished by ward cuts on the bottom of the high security keyblank. (See illustration 3.)



Since our standard keys from the system cannot operate the high security chambers, these keys do *not* require the slots in the bottom of the blank.

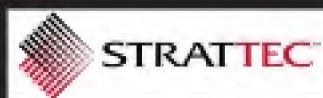
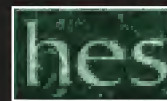
The high security keys balance standard pins at the correct height to operate in the same manner as the regular keys. Thus, high security masters operate all the locks in the system, while the regular keys cannot operate high security cylinders or high security cores. In pinning these cores, it is necessary to pin through the top. A plug follower cannot be used, since the high security chambers require being interlocked before core insertion.

For the standard chambers, pins from a conventional Corbin or Russwin removable core kit cannot be used, since they are for a .509 plug diameter. The high security plug is .552 in diameter. A standard pinning kit can be used to match the appropriate lengths. ■

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Innovations From HPC

"The 'Locksmith Company' has introduced some unique products recently. Check out the redesigned Codemax, the hand held tubular key machine, and the electric pick."

A variety of new products have recently been introduced to the locksmith market by HPC, Inc. This article will review two of them. However, we will begin with an examination of a key machine which has been redesigned by the company to make it easier to use and even more reliable than before.

The redesigned Codemax computerized code cutting machine is on the leading edge of technology. (See photograph 1.) It comes complete with all depth and space information already built in. You simply enter the proper depth and space (DSD) number and enter the cuts. In as little as twenty seconds, Codemax will generate an original key.

Codes can be drawn automatically from Workshop, HPCSoft's computerized code system. Also, complete key systems can be down loaded from Quick*Kab, or QuickChart and QuickCore, making fast turn around of masterkey systems possible.

Plus, all this can be done utilizing the machine's new Job Interrupt feature. This allows the locksmith to interrupt a large masterkeying job, enabling the machine to receive a key code, and then return automatically to the masterkeying job. This can save long set up times between code key and masterkeying jobs.

By way of explanation, Quick*Kab is HPCSoft's latest software which permits monitoring of up to 999 key control systems each of which can be up to five levels deep. Employee records as well as door and hardware schedules are all entered into one easy to use



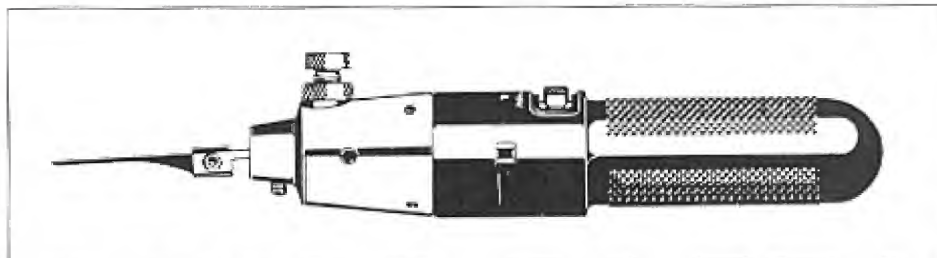
1. HPC's Codemax computerized code machine.

program. Check-ins, check-outs, number of keys lost, etc. are all available

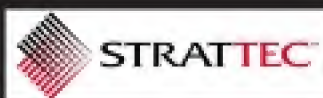
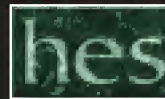
through the many reports built into the system.

An interesting new product offered by HPC is their cordless Electric Pick Gun (EPG-I). (See illustration 2.) This device can easily pick open pin and disc tumbler cylinders through the rake method of picking. Use of the included tension wrench is essential.

The Electric Pick actually requires less practice than does the standard method of picking. The picking action



2. Electronic Pick Gun.

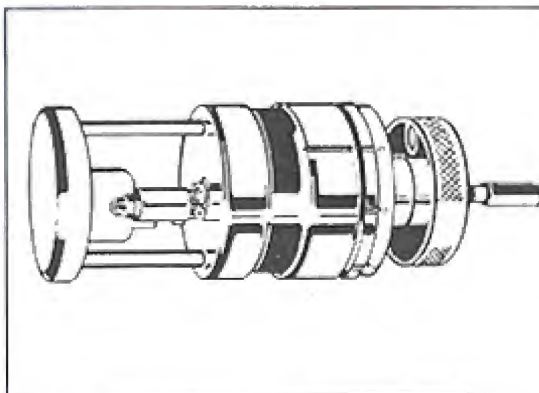


itself is accomplished by the rapid up and down striking movement generated by the tool. The quick and sudden striking of the bottom pins causes the top and bottom pins to separate, meeting the shear line.

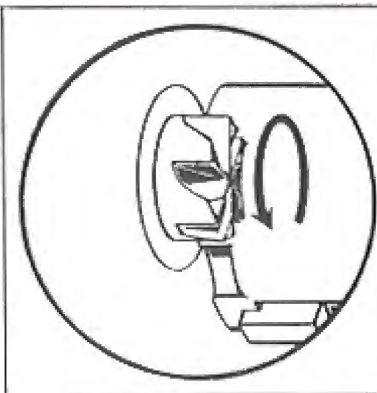
The up and down vibrating motion of the picking action is fully adjustable through the use of a finger screw with a locking nut. This controls the action after the range of motion is set. The gun allows the locksmith to duplicate his exact raking motion at many times per second to actually massage the pins into finding the shear line. You will appreciate the pinpoint control of the raking motion which you can achieve.

HPC's Electric Pick Gun comes complete with charger (for bench or wall mount), three raking tools and two tension tools. The tool is a must for the beginner who wants to pick like an old pro. Plus the veteran locksmith will appreciate the unit as well.

The final item we will examine today is HPC's new hand operated Tubular Key Cutting Machine, The Pocket Cut-Up™, (TKM-90). (See illustration 3.) This revolutionary device is exceptionally compact, light, and totally portable. When in the closed position, it measures less than four inches in



3. Hand operated Tubular Key Cutting Machine.



4. Cutting a tubular key.

length, and is only 1¼" in diameter. The TKM-90 is factory preset to cut standard size, center sequence, tubular keys by code. Offset left sequence and offset right sequence, including dead pin cuts, can be cut with one simple adjustment. You may also use it to cut Greenwald style tubular keys.

The machine is packaged in a compact carrying case, with plenty of room left for your favorite assortment of tubular key blanks. Many innovations have been designed into this exciting product. The tubular key blank is held firmly in place by the swing-away key holding fixture. The key holding fixture locks the specially designed micrometer depth

adjustment knob at the pre-selected depth.

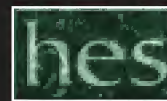
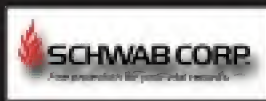
The tubular key is cut by turning the 1¼" diameter cutter knob that operates the specially engineered carbide cutter. (See illustration 4.) The in-line key cutting design makes the manual cutting of tubular keys an easy, quick and accurate job. Moreover, an adaptor is affixed to the cutter handle. This allows you to use a cordless screwdriver to power the machine for a more effortless job. Thus, many keys can be cut quickly and accurately, even on site.

For more information contact: HPC, Inc., 3999 N. 25th Ave., Schiller Park, IL 60176, (708) 671-6280. ■

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Security Products By MAG

"All the products recently introduced by MAG have been incorporated into their California facility. These are sliding door locks and other patented devices."

MA.G. Eng. & Mfg. Co., Inc.—a manufacturer of reinforcement security hardware for door, locks and frames—has recently acquired S&D Industries. All products have been incorporated into M.A.G.'s facility in Huntington Beach, CA. This unique line of sliding glass door locks plus numerous other patented door and window hardware is now available for immediate shipment.

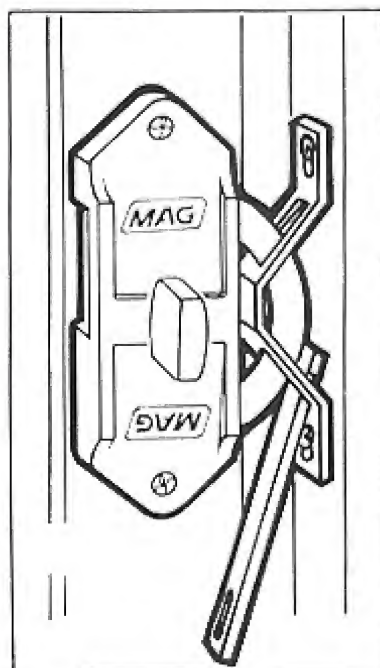
The 8300 through 8600 series sliding door locks feature loop locking action

which prevent door lift-out. They can also lock in the vented or closed position. Tamper-proof screws, included with the locks, guard against unauthorized entry. The hardened loop, tab and strike resist cutting and sawing. For ease of installation, extra spacers are provided, as are strikes to make for universal application. The locks are available as follows: thumbturn only, turn and cylinder, inside cylinder only, and double cylinder.

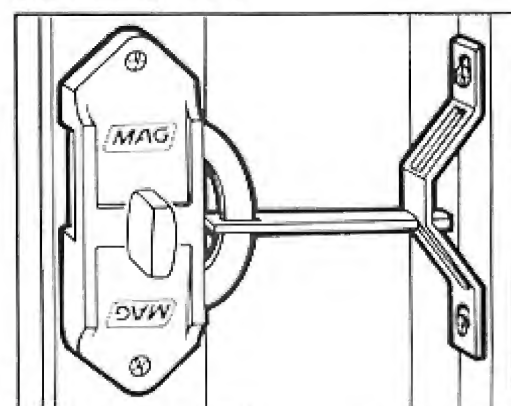
The 8700 Tamper-proof Flip Lock

features a patented tab to prevent tampering from the outside. This gives added security for an economical price. The 8709 Tamper-proof Chain Door Guard contains a patented "hook-up" which eliminates slack in the chain for additional security. Removing the chain from the hook-up allows viewing.

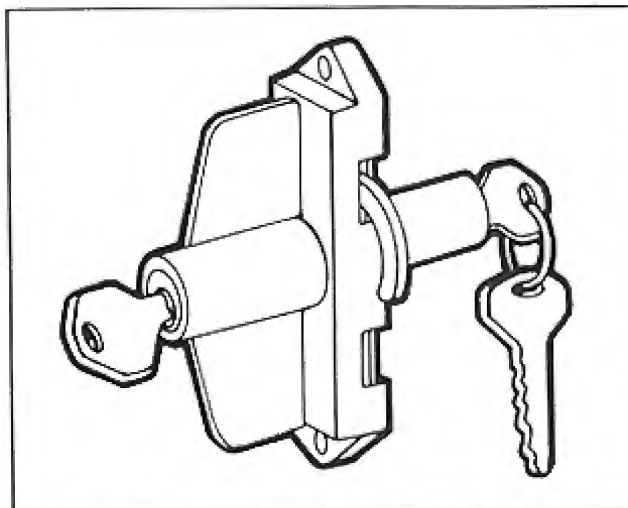
The 8712 Security Pinned Door Guard Lock has additional holes in the casting to allow the insertion of heavy steel pins to secure the door in the closed position. Simply remove the pin



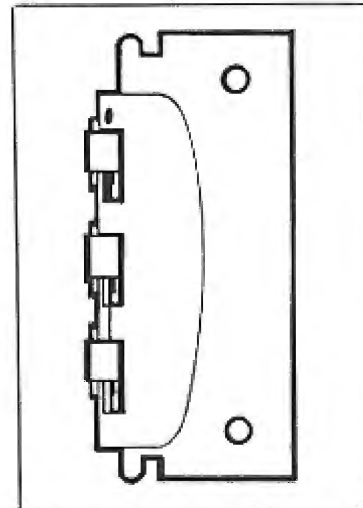
Model #8300, locked.



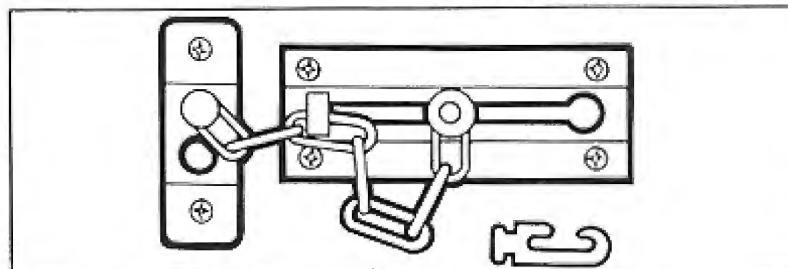
Model #8300, vented.



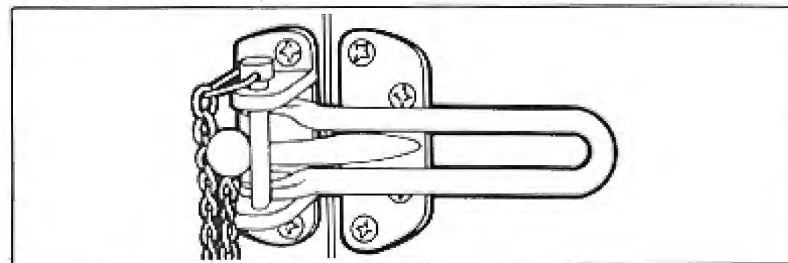
Model #8500.



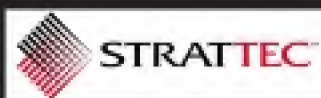
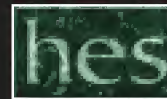
Model #8700, Credit Card Locking Tab.



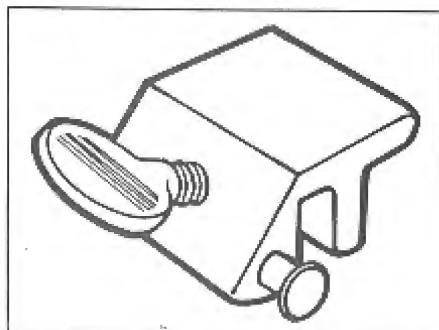
Model #8709, Security Hook.



Model #8712, Security Pinned.

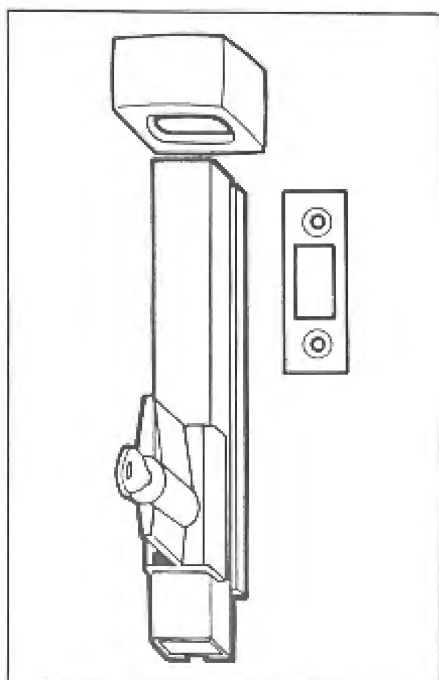


from its fitting for secured viewing. The 8740 Tamper-proof Heavy Duty Sliding Window Lock contains a patented release button as part of the mechanism. This release button must be held in to allow turning of the thumbsecrew. This is a two-handed operation which inhibits tampering by an intruder when the window is locked into a vented position.



Model #8740. Tamper-proof button.

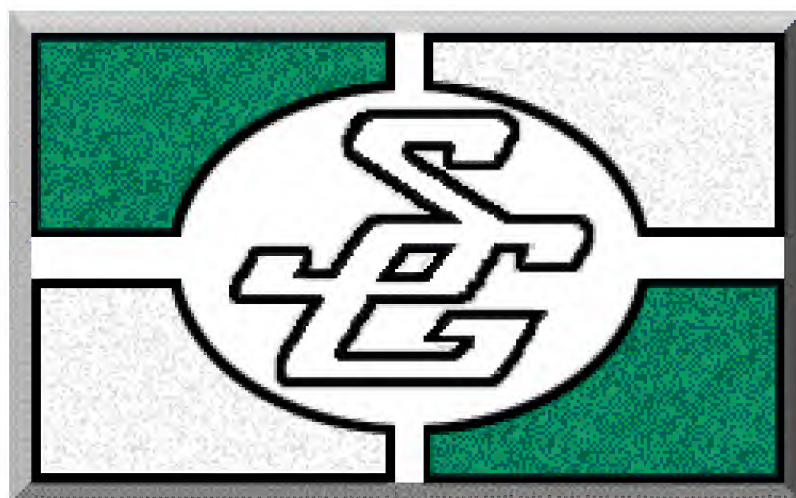
The 8810 Heavy Duty Rekeyable Surface Bolt features a 1 1/4" bolt. The concealed throw mounting surface has a composite keyway in a six pin cylinder. The key must be used to activate the bolt. The key can only be removed when the bolt is in the locked or unlocked position. Both universal and mortise strikes are provided with each unit.



Model #8810.

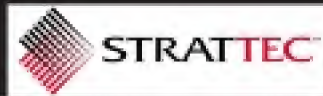
There are other factors regarding these products which are worth mentioning, including a counter display unit and attractive packaging. These security items are all excellent impulse sellers.

For more information, contact: Fred Pannebaker at M.A.G., 15261 Transistor Ln., Huntington Beach, CA 92649, (714) 511-5100. ■



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Dale Opens Vault Doors

"The new owners wanted to know what was inside the vaults, so after negotiating for several hours, we came to a fair price for doing all the lock work."



by Dale Libby

Lumber yards come and go, but it seems they always leave surprises. A large lumber business left a 100-year old building with two locked Mosler vaults. No one knew the combination to either unit.

The new owners wanted to know what was inside the vaults, so after negotiating for several hours, we came



1. Back cover of vault doors.

to a fair price for opening both vault doors, putting on a new combination,

and rekeying the rest of the lumber yard, out buildings, box rooms and break buildings.

Three days later, after retro-fitting locks, doors, overhead doors, sliding fire doors, cabinets, and too many other locks to mention, I came face-to-face with my first vault door. These doors were installed after World War II and probably had not been serviced too often. In essence, I left the best for last. (See photograph 1.)

The two vault doors, set on different floors, were handed differently. One of the doors was left hand, the other right hand. Other than that, they were identical. Each contained a spy-proof dial and a horizontal handle made of

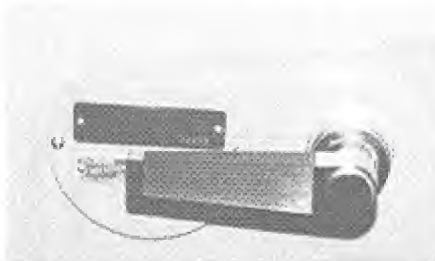
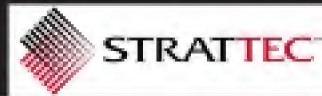


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2. Cover and emergency handle on back of vault doors.

black plastic.

The center insert on the dial was a brushed type gold insert with burnishing, as opposed to the standard type black or silver. By turning the dial, I counted four wheels and a driver. Both door dials turned freely, seeming to be in good working condition when I first inspected them.

I knew what tactics I was going to use to open these units, but first I always think the problem through. I did not want to drill and repair the vault doors, since that would *not* have been cost effective in this case. The new owners were in no hurry to get the doors open, so I actually had all the time that I needed. I could then fit the openings into *my* schedule.

On older vault doors equipped with inside emergency release handles, (see

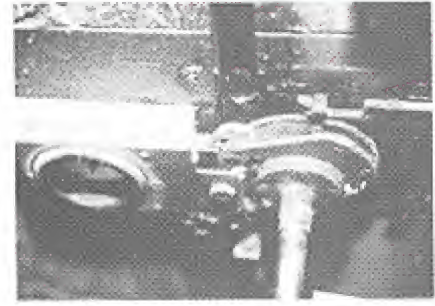


3. Cover is removed to show inner curb with emergency handle.

photograph 2), you can sometimes drill an $\frac{1}{8}$ " hole and then use an ice pick or small stiff wire to open the vault doors. Some of these older vault door mechanisms feature a spring-loaded extended combination lock bolt. The inside release handle moved the lock bolt out of the way to gain release.

From the outside, all you have to do is drill for the end of the bolt, either pushing or pulling it out of the way after drilling your small hole in the proper place. You are then into the vault. Many times there is no hardplate to penetrate, allowing the job to be accomplished in a few minutes. (See *photograph 3*.)

From past experience on Mosler units of the same year, this type of



4. Emergency release hook on top of combination lock bolt.

attack on the inner release mechanism will not work. Mosler has improved the system with a hook type inner release setup that cannot be jimmied from the outside or inside.

In effect, the hook is above the combination lock bolt. (See *photograph 4*.) To release it, the inner handle must be either raised or lowered, depending on handing of the door. This will then move the hook back and out of the way of the combination lockbolt allowing the inner and outer handle to turn and open the active bolts. This will allow the door to open.

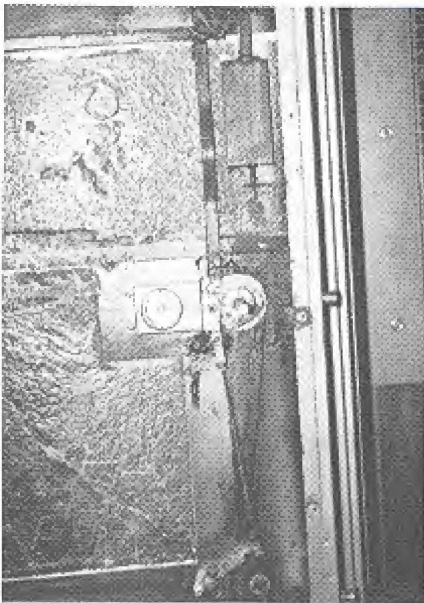
When I first started this job, I thought that if I could drill for the tip of the bolt, then I could pry it out of the way and easily gain access. This was not the



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5. Relocker is shown at bottom of picture.



6. Curb removed to show drive wheel and edge of roller fence.

case. A slotted cam pulls the bolt out of the way, and the only way to move the cam is by turning the handle. In other words, the hook arrangement is like a deadbolt and not a springlatch as on older emergency handles. There is no shortcut to attack this hook.

I briefly thought of drilling either above or below the locking handle on the outside and putting in a wire or small noose-type arrangement. Then I could hook the inside handle, either pulling or pushing it, until the inside handle opened the vault door. This might be too simple to do, but if I knew whether the handle moved up or down, it then might work if *all* else failed.

I decided that I was not going to drill either of these units. The locks felt good and I knew they were not the standard 302-402 or even the CD-120 locks that Mosler used. They were and did feel like a Mosler roller bolt lock.

The Mosler dial ring did not have a

changing index mark inscribed on it, so I could not tell if the wheels were hand or key changeable. But when manipulating a safe, it really does not matter. On some Mosler safe dial rings that are key changeable and have no mark, all you do is add or subtract 10 numbers, and use the dialing index as the changing index.

The locks used on these vault doors were four wheel roller bolt type locks, giving only one good indication to me. For manipulation, I only use one contact point, as a rule for all locks on safes. On traditional safes with a drop lever, I use the left contact point, by dialing to the right. This gives me a reading on the slope of the driver cam which is stronger than the other contact point and will show change easier. On roller bolt locks, there is only one contact point.

By using speed manipulation on both vaults, it took about 35 minutes to open. I decided to take one of the units apart so that you could see the inside workings of the vault doors. You can also see some of the nasty surprises that may await you if you have to open any of these units by drilling. (See photograph 5.)

In fact, it took longer to disassemble one vault door and photograph it, then it took to open both vault doors combined. On the back of these vault doors are eight large screws attached to valve springs similar to the springs attached to large slotted screws. Once the screws are removed, a large insulating layer is removed. Under this layer is a sheet metal piece, secured by another eight screws and springs. Once this is removed, you can view the secret inner workings of the vault door.

Actually it is pretty basic, except for a few nasty surprises. A relocking device is attached to the combination lock bolt cover guard. This is attached to a thermal relocking link. The link attaches to a long rod, attached to a spring-loaded hook located on the lower bolt work. If the upper lock or combination lock bolt are punched, the relocker is then activated.

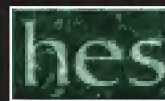
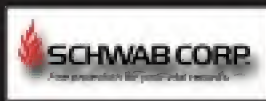
The position for this relocker is 17" down from dial center and 4" over for the fulcrum point. To get to the hook itself, add 2" to 6".

The lock features a four wheel hand change combination wheel pack on a round curb. (See photograph 6.) This is secured by two screws on the top and bottom. The last turn is to the left to stop. This is a sure sign of a roller bolt type arrangement. Open and prosper! ■



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The New Maxum By Medeco

"Medeco Security Locks took the deadbolt into their own hands and came up with the Maxum, which weighs in at almost three pounds. It has security and flexibility."

Take a good thing and improve upon it. Make it more convenient, more serviceable and more consumer-friendly. Give it more security measures, more flexibility, and less required stocked parts.

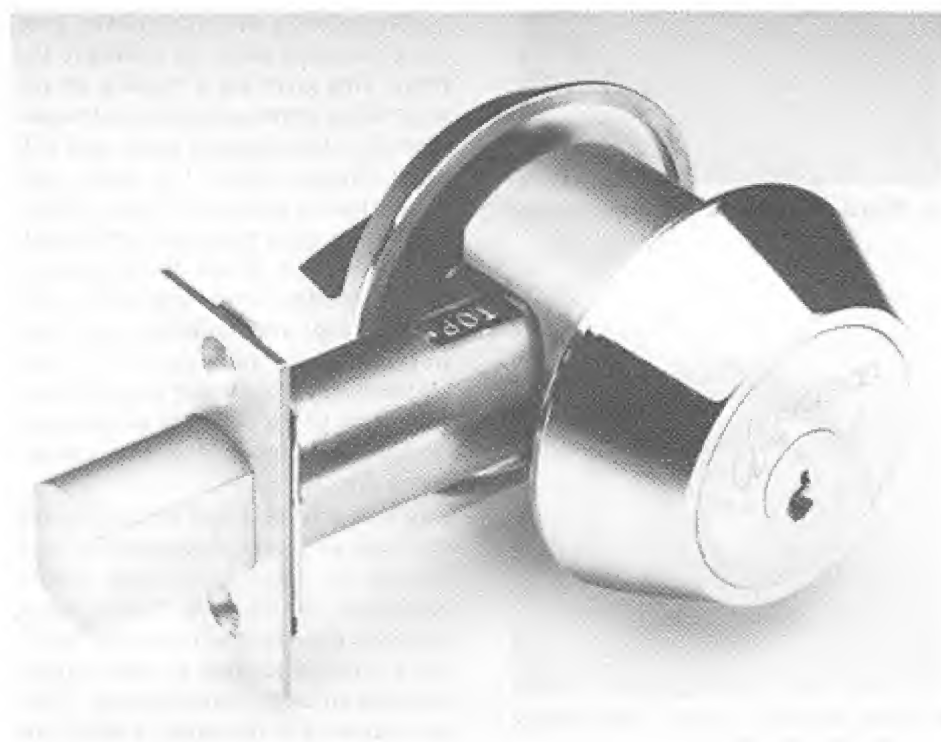
Sounds like a good thing. Medeco Security Locks took the deadbolt into their own hands, and came up with the Maxum, which features all of the above benefits and weighs 2 lb.s and 14.5 oz.

"We listened to the locksmith industry, and they told us what they wanted," said Mike Elsberry, Medeco's Product Development Manager of the Door Security Division. "One of the greatest characteristics of the Maxum deadbolt is its flexibility, without compromising any security. The redesigned collar fits over the industry-standard 2 1/4" hole."

But the flexibility goes much further than that. Now locksmiths can have one of the most secure deadbolts available, invest in fewer stocking parts, and still have a lock made for either wood or metal doors. "The Maxum's bolt face can be twisted off, and the drive-in cam can be twisted on," said Elsberry. This patent-pending design, he said, converts the deadbolt to use on metal doors with the addition of the drive-in ring. Both types of bolt "faces" come prepacked with every deadbolt.

With one standard package and added accessories, this lock can convert to fit any door option. Standard deadbolts can be converted to inside and outside blank functions, screw package lets deadbolts fit 2-2 1/2" door thicknesses. Optional rings are available for 1 3/8" door applications. These money and time-saving devices make locksmiths' investments more economical.

But security is, and always will be, a big issue among endusers. Medeco's Maxum is available in both original and BIAXIAL designs and includes new security features which add power to the punch. "Take the hardened steel washer inside the collar. It will prevent



Medeco Security Locks' new Maxum.

drill-through attempts; and the added hardened protection shield to the crossbore, to prevent latch manipulation," said Elsberry. "And there are no exposed screws."

Security is also found in the new bolt design, which prevents manipulations, is made of hardened steel, and includes the Medeco standard 1" throw, with 1" of the bolt encased in the sleeve.

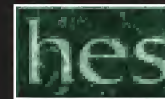
"The bottom line is this: you only have to have one stocked product, the Maxum. It's easy to use, and is created for more flexibility," said Elsberry. "Two years of extensive research, consulting and design went into this fine deadbolt. It came about through our communication with the Medeco Locksmith Council and has been tested at various independent laboratories throughout the country. It meets all the needs of the market place and it even comes in removable core design." This is in addition to the standard and captive thumbturn function.

There is one niche that has not been mentioned—the growing senior citizen population, so often forgotten in this high-tech new age of ours. The Maxum deadbolt's thumbturn is much larger, crossing the diameter of the lock face, so that aging citizens can work it easily.

In addition to the new and improved features of this deadbolt, it comes with all the high security designs of standard Medeco products. For instance, the key control benefits which meet various needs with restricted key blank distribution, controlled and assigned keyways, and patented protection, or the sight finishes to match an interior scheme, or the drill and pick-resistance, intrinsic to Medeco locks.

Locksmiths will want to try the Maxum deadbolt out. It can be found on display at the Medeco ALOA booth this month in Chicago.

For more information contact: Medeco, P.O. Box 3075, Salem, VA 24153, (703) 380-5000. ■



STOPPERS



The *National Locksmith* magazine would like to welcome you to this year's ALOA show whether or not you are attending in person. In this section of Showstoppers you will find products, many of them brand new to be exhibited this month in Chicago.

Along with a photograph of each item is a brief description and a Rapid Reply number. If you are with us in Chicago, please stop by the booths of those manufacturers who interest you. If you are not making it to the show,

circle the appropriate Rapid Reply numbers on the Rapid Reply card in the rear of this magazine. That way you'll still get information about these products.

Of course, not everything to be exhibited at the show would fit here, so be aware there's a lot more to see. To the best of our knowledge, the booth numbers on page 86 are accurate. However, some of them may change after we've gone to press.

**This year, come visit the staff of
The National Locksmith magazine at Booth 316-318**

AAA Products' Impressioning Tool

AAA Products' Jiffy Model T tubular keymarker and impressioning tool is an easy to use tool to impression tubular keys.

To use this tool, a brass tubular key is pushed into the tool nose while the seven starting cuts are made in the key tube with a safe edge file.

The knob on the rear of the tool is then turned to push the key out 6/16" and the key is clamped for impressioning. When the impressioning is completed, turn the rear knob and the finished key is ejected.



Circle 363 on Rapid Reply

Medallion™ Series New At Aanon

Aanon's TL-15 and TL-30 UL-approved TL-15 and TL-30 Medallion safes offer full custom flexibility, including steel and concrete cladding, alarm sensors, teller lockers, special interior drawer and shelf configurations, and drop-through chutes.

A broad range of options including key locking dials, time locks, ultra-high security dual locks with custom cylinders will provide a cash-handling system for a variety of needs.



Circle 364 on Rapid Reply

Abloy Adds AWI Line

Abloy Security Inc. adds the AWI product line to its existing product stock.

The AWI cylinder is offered in 20 popular keyways of mortise, rim, thumbturn and dummy configurations. The Convert-a-Lock key-in-knob cylinder is also offered in 20 different keyways.

AWI's Fileguard is a file cabinet and office machine locking bar that is offered in various styles and can be set with padlocks or with its own built-in lock.



Circle 366 on Rapid Reply

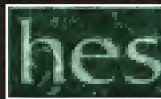
Abus' New Security Line

Abus Lock Company introduces the new 87 Series brass padlock line featuring a solid brass body enclosed in an attractive black industrial strength vinyl sheath.

The padlocks contain a special steel alloy hardened-to-the-core providing extra shackle strength. The locks are also double bolted with extra strong bolts. The 87 Series has a 6 pin solid brass pin tumbler locking mechanism, and features a special keyway with over 17,000 possible key changes.



Circle 365 on Rapid Reply



Alarm Lock's Digital Lock

Alarm Lock System's stand-alone DL2500 digital lock offers features found in expensive personal computer based access control systems at the same cost as most mechanical digital locks.

The DL2500 system utilizes a standard 2 3/4" backset and will adjust to fit 1 3/4" or 2" door widths. The system offers multiple code levels, programmed passage function, group shunt, single use code and is completely keypad programmable.



Circle 251 on Rapid Reply

American Device's Exit Device Guide

A complete 16 page specification guide for the expanded 6000-series of "low maintenance exit devices" is available from American Device Manufacturing Company.

The guide features a simplified heavy duty locking and releasing mechanism, along with a touch bar devices line available in 11 standard finishes with five different cover materials.

Also included in the line are concealed and surface mounted vertical rod, rim and mortise devices with a full range of trim options.

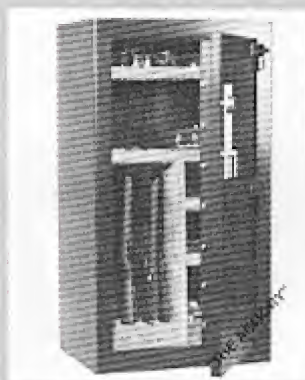


Circle 252 on Rapid Reply

Amsec's Armory Gun Safe

American Security Products introduces a one-ton vault that offers gun collectors protection from both fire and burglary.

The Armory is a 2000 pound safe with a total of 14 locking bolts, a reinforced door frame, a Sargent & Greenleaf II lock with spyproof dial, auxiliary relocking devices, heat treated hardplate and a two hour factory fire rating.



Circle 253 on Rapid Reply

Antel's New Cellular Phone

Available from Antel is the STR500, a full-featured aggressively priced cellular phone, that allows the user to touch just one button to dial one of three programmed numbers. It is the first model made of the company's own specifications and the first unit in Antel's new Signature series.

The STR500 contains a mini transceiver to allow for transportability and easy service, and an RJ11 plug for lap top computer and fax interface.

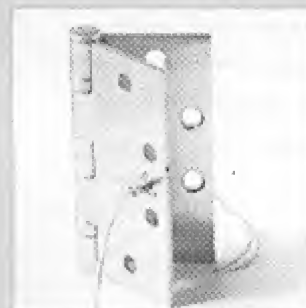


Circle 254 on Rapid Reply

ACSI Offers Hinge Changes

Architectural Control Systems, Inc., a full-service designer and manufacturer of high quality control systems, introduces electric hinge modification for virtually any manufacturer's hinge, enabling customers to achieve substantial cost savings and delivery efficiencies.

ACSI's Series 1100 hinge modifications include electric through wire, electric monitoring, electric through wire with monitoring and air modification and can be combined with ACSI series 1500 lock modification.



Circle 255 on Rapid Reply

Boston Lock's New England®

The New England is a key operated safe which allows you to change the key combination immediately, and is available from Boston Lock & Safe Co.

The Falcon interchangeable core lock allows you to remove the core with your control key and insert another core set to a different key combination and all cores can be set to a master key system and/or for multiple store use. Cores can be used over and over at different locations if desired.



Circle 256 on Rapid Reply

Brigg's & Stratton's GM Key Cover Rack

Key cover racks from Briggs & Stratton Technologies, are now available for use in the table top display of bubble packed GM key covers.

The racks measuring 8" x 13", are an easy way to display your key covers, and are designed to increase point-of-purchase sales. The racks also help increase profits from key sales.



Circle 257 on Rapid Reply

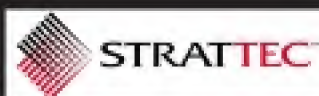
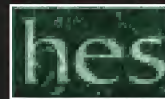
Capricorn's New Security System

The SPI-648 from Capricorn Electronics, Inc. is a highly flexible security system with both wireless and hardware capabilities, and contains a sophisticated wireless system, a versatile hardware control or a combination of both.

The SPI-648 system contains many new and practical features and is designed for maximum user convenience. Homeowners and business people can now have an easily understood system without complex and overwhelming operating procedures.



Circle 258 on Rapid Reply



Cardkey System's Access System

Cardkey Systems, Inc., introduces the D200 Access Control System, a complete single-door access control system, that can economically expand to control four doors.

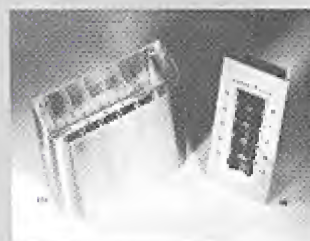
The D200 supports Cardkey's Wiegand and magnetic-stripe card technologies, and has the capacity to control up to 1,500 cards. The base system includes a reader controller and one card reader, while additional readers can consist of Cardkey's new lost cost SR20 Series Smart Readers.

Continental's New Decorator Panels

Cypher Lock from Continental Instruments Corporation is now available with optional indoor decorator panels.

The spy-proof decorator panel is surface mounted and features a contoured, brushed stainless steel enclosure and recessed spy-proof buttons flanked by easy-to-read numbers.

The flush mounted decorator panel is an unshielded slim-line stainless steel panel and has a built-in appearance.



Control System's Card & Key Readers

Control Systems International's card and key readers offer two types of encoded, high energy magnetic stripe devices for identification purposes.

A lightweight and flexible 2½" key can be carried on a normal key ring or a credit card size card. The codes used on both the key and card are scrambled during the manufacturer's programming process for protection.

Control Systems' insertion type readers are designed for low profile installation in narrow door frames.



D&H Offers Access Solution

A cost effective solution for organizations needing to control access through a single point of entry. Whether through a door, gate, turnstile, you can regulate entry for 500 card holders.

At the heart of the system is the model 1000 controller. Installed indoors in a sturdy locked enclosure, the controllers command a weather proof card reader that can be located up to 800 feet away. A built-in keypad allows you to change programming instructions quickly and simply.



Dayton Safe's New Cash Safe

Dayton Safe Company, a manufacturer of cash handling safes, introduces safe model #D1910, Crated for burglary.

It is a double compartment safe with a deposit chute and an anti-fish baffle from the upper into the lower compartment. A top hinged door is secured with Sargent & Greenleaf's #4113 key lock and the bottom compartment is furnished with Sargent & Greenleaf's #6730, a top reader dial and hard plate.



Circle 263 on Rapid Reply

Doorguard Systems Battery Model

Doorguard Systems, Inc. introduces the battery back-up power supply model, PS12B and PS24B, for 12 and 24 volt CD supply when inadvertent power outages occur.

Both models have regulated switcher power supply, an instantaneous switcher to D.C., fire alarm interface, fused D.C. protection, LED power indicator, battery charger, and surge protection. The models are supplied with lead acid batteries.

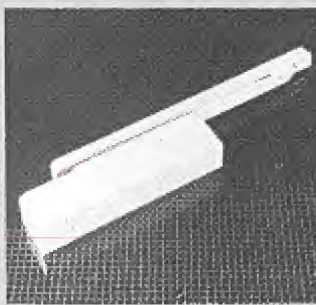


Circle 264 on Rapid Reply

Dorma Door's Door Closer

The Dorma TS 93 cam-action door closer, available from Dorma Door Controls Inc., provides for smoother door control than conventional rack-and-pinion designs.

The Dorma TS93 is suitable for both standard and frame installation, and comes equipped with adjustable spring forces, adjustable built-in back-checks, adjustable closing speeds and latch ranges, along with a variety of add-on features for improved comfort and security.



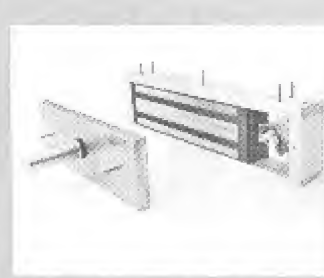
Circle 265 on Rapid Reply

DynaLock's 2000 Lock Series

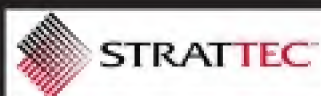
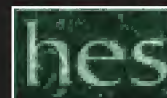
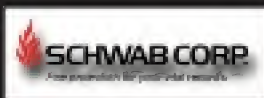
DynaLock Corporation introduces the #2000 Series of low cost electromagnetic locks with 1200 pounds holding force and a traditional lock construction.

A five year warranty of American made quality and DynaLock service and delivery is also included.

Standard features of the electromagnetic locks include a choice of 12 or 24 volt models, internal wiring access area, circuit board with spike suppression, and a convenient wiring terminal strip.



Circle 266 on Rapid Reply



Edwin Products' Money Detector

Available from Edwin Products is a new counterfeit money detector designed to detect the metallic particles in the ink located on the portrait and the border on the front of currency bills.

The moderately priced detector operates on a 9 volt battery, allowing the legal tender to activate a tiny LED indicator and buzzer confirming the bill's authenticity.



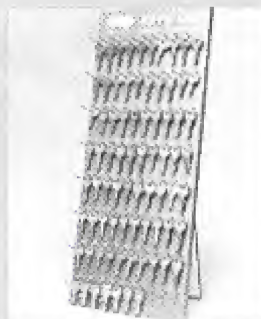
Circle 267 on Rapid Reply

ESP's Auto Keyblank Display

ESP Corporation introduces a new Foreign Auto Keyblank Display and Assortment, available in a bright blue color and accommodates 80 different key styles with 80 hooks.

The display can be hung on a wall or used free-standing with an included sturdy easel and each hook is numbered sequentially to allow for future additions.

The new keyblank assortment for this rack has been enlarged to offer all of ESP's latest foreign auto keys that are being currently introduced.



Circle 268 on Rapid Reply

Ewert Wholesale Adds Russwin

Ewert Wholesale is adding the Corbin and Russwin lines to its current product line.

Closers, deadbolts, mortise deadbolts, mortise locksets, cylindrical locks, uniloc locksets, security bolts, exit devices, key-blanks, cylinders, rim, mortise, master ring and parts are available along with all locksets offered in many nonstock keyways.



Circle 269 on Rapid Reply

Fichet-Bauche's In-Room Safes

Fichet-Bauche North America's new series of in-room safes with an electronic locking system, operates with an eight-bit microprocessor, and is designed for low power consumption. It is battery operated, and comes with a two-year battery life span based on four openings per day.

The electronic locking system is activated by a six-digit code chosen by the user and has protected confidential master code that can be used as a backup for operating the safe in case the user code is forgotten.



Circle 270 on Rapid Reply

Gil-Ray Tools' Code Cutters

Gil-Ray Tools Inc., has added the precision GR4711 MC code machine cutter to its line of quality replacement cutters for HPC 1200 CM Code Machine

The new GR4711 cutter is for cutting Geo, Isuzu, Toyota, Suzuki, Honda and Eagle keys and does not require special code cards. It can be matched to existing sets of code cutters.

Gil-Ray cutters are made from premium high speed steel, well known for higher edge toughness and long wearing durability on all key materials.

Glynn-Johnson's Flush Bolt Design

A new automatic flush bolt designed by Glynn-Johnson to be used with fire door pairs, features improved materials and construction. It is designed to reduce wear, extend service life and improve operation of the bolt.

The new units, when used in conjunction with exit devices, hospital latches or other single-point latches, provide the necessary three-point latching for fire doors.



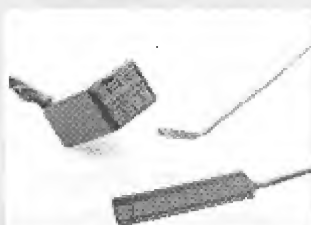
Circle 272 on Rapid Reply

Harrison's Auto Starter Kill Kit

Harrison Electronic's 9828 Safestop™ Starter Kill kit is an anti-theft starter disabler which prevents hot wiring or using an unauthorized key on the protected vehicle.

The kit features passive arming when the ignition is turned to off and an LED signal will begin to flash. This signifies the system is armed. Disarming is a two-step process by using the ignition key and a unique hidden pressure switch.

The Safestop™ can be used as an independent system or with a passive or remote alarm or a pager.

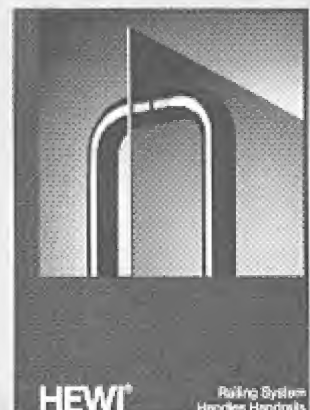


Circle 273 on Rapid Reply

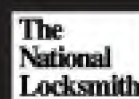
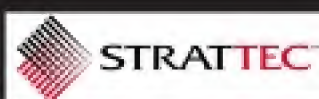
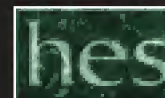
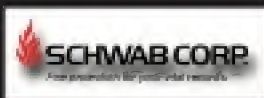
HEWI Publishes New Brochure

HEWI, Inc. has published a new brochure offering design suggestions, full color illustrations and descriptive information about custom handles available using the HEWI railing system.

Custom designs are achieved through component combinations made in two diameters and 13 colors. Handles are easily installed with fasteners suited to various requirements.



Circle 274 on Rapid Reply



IEI's New Keypad Series

International Electronics, Inc. introduces a new IEI-200 Series stand-alone keypad, with three models containing two, eight or 32 unique programmable codes.

The keypad, available in a weatherproof version, features a built-in timer, non-volatile memory, one to six digit codes with repeatable numbers, programming from the keypad and a 5 Amp Form C relay output. Over a million possible codes to choose from.



Circle 280 on Rapid Reply

JS Products' Light Inspector™

Steelman/JS Products, Inc. introduces the Steelman™ Inspector™, a lighted adjustable inspection mirror featuring a 1½x2" rectangular mirror with a brilliant light at the base of the mirror which illuminates the total inspection area.

The Inspector eliminates the guesswork and time wasted with changing mirror angles by allowing the user to adjust the mirror angle by quickly and simply adjusting the thumb control knob.

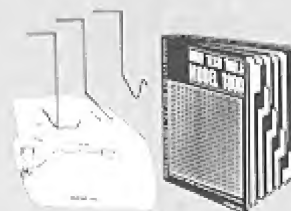


Circle 281 on Rapid Reply

High Tech's Model 1800 Lockout Set

High Tech Tools' new Model 1800 Auto Lockout Set, unlocks all new 1990 cars and trucks and includes a new two volume auto encyclopedia with over a thousand pages of useful information.

All previous sections of the encyclopedia have been extensively updated while dozens of new features make the Model 1800 the most complete, up-to-date and authoritative set of its kind.



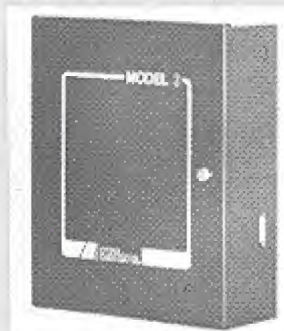
Circle 275 on Rapid Reply

Hirsch Electronics' Digi-Trac™ System

The Model 2 Digi-Trac™ from Hirsch Electronics Corp. is a digital security command and control system that tracks personnel entry, intrusion alarms and relay usage day and night.

The security control system is perfect for computer rooms, tool rooms, and small offices in banks, hospitals and schools.

It supports up to six Scramble Pads® for access control and programming and includes an optional network.



Circle 276 on Rapid Reply

Kaddies Inc.'s Tool Kaddie

The Tool Kaddie from Kaddies, Inc. is a unique dolly style, plastic tool and parts organizer, which allows you to store, lock and roll your tools and parts to the job in one trip.

The Tool Kaddie is made of durable, double wall molded plastic, and is a time and money saver, eliminating endless trips back and forth for tools and parts. It provides an organized and professional appearance as well as safe, lockage storage for tools, while on and off the job.



Circle 279 on Rapid Reply

Kano Laboratories' Rust Remover

Kano Laboratories, Inc., introduces Exrust, a concentrated chemical rust remover to treat metal surfaces with a coating or plating application.

Exrust quickly dissolves rust by neutralizing ferrous oxide. It is available in 1-gallon, 5-gallon, 15-gallon and 55-gallon containers, as well as a 1-pint trial size.

A full money back guarantee is warranted with every proof-of-purchase.



Circle 282 on Rapid Reply

HPC Introduces 1990 Catalog

The new HPC 1990 catalog details HPC's extensive product lines and is clearly illustrated with camera-ready art.

There is more updated technical information available than available in past years with 116 pages on products in the catalog.



Circle 277 on Rapid Reply

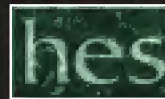
Hydrosorbents' Silica Gel

A new silica gel unit, from Hydrosorbent Products, protects equipment from humidity and condensation and stops rust, mildew and corrosion before they begin.

This new Hydrosorbent silica gel unit provides perfect protection for valuables stored within gun safes and display cabinets. The stainless steel canister measures 6"x4" diameter and contains 750 grams of the highest-quality silica gel. It protects 57 cubic feet of enclosed space.



Circle 278 on Rapid Reply

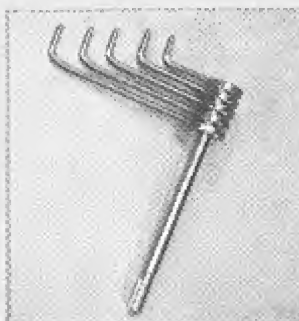


Lockmasters' New Picking Tool

Lockmasters, Inc. announces the creation of an exciting tool for easily picking LaGard's 2200 key lock.

The Skip Pick created to manipulate the LaGard 2200's drive cam and all four wheels in a matter of minutes, is used in conjunction with an amplifier to allow the steel 'L' handles to align the wheel gates and drive cam gate under the fence.

When properly aligned, the lever drops and then simply retract the lockbolt using one of the 'L' handles.

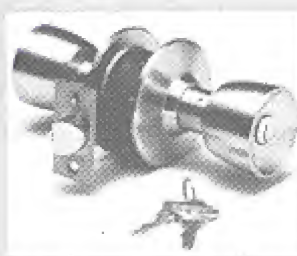


Circle 288 on Rapid Reply

Locksmith Dealer's Cylindrical Lockset

Locksmith Dealers of America introduces a new Grade 2 Cylindrical Lockset available in two knob designs, five finishes and includes the most popular function.

LSDA's Grade 2 locks are supplied with a Schlage "C" or Arrow keyway and will accept Lori replacement cylinders, AWI convert-a-lock cylinders, ASSA and Medeco, cylinders used for Schlage key-in-the-knob locks, and is ANSI Certified and U.L. listed.



Circle 289 on Rapid Reply

Masterkey Systems' Masterkey Software

An affordable, easy to use masterkey program from Masterkey Systems is ideal for the small locksmith that does not need large capabilities, a lot of books and complex operations.

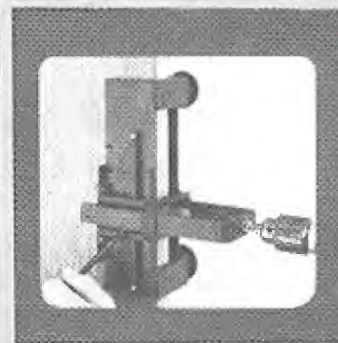
MS DOS is a 5¼" floppy disk that furnishes charts, floppy record recording, and up to three submasters. Level 1-4 is included along with vertical or horizontal printing or video presentation and is menu-driven and user friendly.

Circle 290 on Rapid Reply

Marks Hardware's Video Tape

Available from Marks Hardware, Inc. is a video tape that graphically demonstrates the ease of installing a mortise lock with its mortise lock installation tool (J8000). The video is included with every J8000 tool and demonstrates the precision with which the mortise cavity can be created.

The J8000 tool is for use with a standard ¼" electric drill to mortise doors 1½"-1¾" thick and mortise depth adjustments can be made easily.



Circle 291 on Rapid Reply

ESP's Improves Key Holder Line

ESP introduces Hide-A-Key Plus™, larger to hold today's bigger and longer keys.

It is made in the USA from rugged, high-impact styrene for durability and features double-magnets for extra-powerful gripping strength.

The Hide-A-Key Plus is available packaged in 10 pieces on multi-colored metal display card, 12 pieces per box, bulk packed. It is also available packaged in 12 eye-catching blister carded pieces per box.



Circle 292 on Rapid Reply

Master's Marine Lock Merchandiser

Master Lock's free merchandiser virtually sells marine locks on sight, by allowing the dealer to select customized mixes of brass marine locks, outboard motor locks, trailer locks, and various other security items to display in it. This gives the dealer a change to take advantage of traffic and price-point requirements.

The compact, versatile countertop display measures 16" high x 18" wide x 8" deep. It is ideal for showcases near any cash register.



Circle 293 on Rapid Reply

McGunn's High Security Safe

Designed in collaboration with Israeli security experts, the McGunn DS7036, 4700 pound, 38 cubic foot Diamond high security safe is insurable for the storage of valuables worth \$1 million or more.

The Diamond is one of the toughest, most expensive and strongest safes currently available. Both the door and body are cast from Alcorill, an advanced patented defensive material which withstands torch, flux, drilling and explosive attacks.



Circle 294 on Rapid Reply

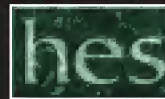
MDS Develops Portable Borescope

MDS, Inc. announces an economical, completely portable, focusing borescope with sharp, clear undistorted magnified mirror images of inspection areas, provided with a series of optical side wall probes.

A variable light control on the lightweight "C" cell size power handle assures the user of maximum illumination in darkened cavities.



Circle 295 on Rapid Reply



MRL Offers Crypto Code

MRL Inc.'s Crypto Code offers many features reasonably priced.

Available simultaneously with Crypto Code are 31 codes with 100 million possible variations. Other features include: panic, duress and penalty output; EEPROM storage; variable open time, penalty count and penalty time; forced entry detection; LED status indicators; fail-safe and fail-secure models, and bypass mode and annunciator output.



Circle 300 on Rapid Reply

Nalcor, Inc.'s Wireless Alarm

Two new easy to install and affordable wireless burglar alarms from Nalcor, Inc., gives consumers an alternative to higher-priced, more complicated direct-wire systems.

The Nalcor alarms, available in window-mounted or door-mounted units, are activated when the door or window is opened 1/4". An 85-decibel horn, in two easily distinguishable tones, alerts the homeowner that a door or window is opening.



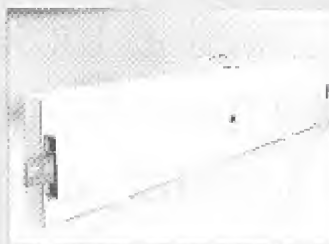
Circle 299 on Rapid Reply

Norden Lock's Police Lock

The Norden Lock Co.'s Norden Police Lock is added to its product line of security locking devices.

The police lock provides superior locking protection plus the advantage of being locked or unlocked from either side of the door. It can be utilized in both commercial and residential applications.

The police lock comes in two models which cover door widths from 28"-48". Model 36 (28"-36") and Model 48 (36"-48") are available in either light gray or dark bronze. Both can be mounted on either in or outswinging doors.



Circle 298 on Rapid Reply

No. Computers' Software Package

Northern Computers, Inc. introduces the N-500 PC, including personal computer interface, software and operator manual at 1/3 the cost of traditional distributed process.

Personal computer based panels of the N-500 PC systems combine the low price of stand-alone access control systems and the data storage and menu driven programming of computer based systems.

This combination allows for the installation from one to 16 doors with any combination of stand alone and/or PC based.



Circle 297 on Rapid Reply

Key Switches From LSE

Locknetics Security Engineering announces the introduction of its 643 and 644 Series Heavy Duty Keyswitches which meet the most demanding of applications.

Operating with an optional 1 1/4" mortise cylinder, the 643 and narrow style 644 have been designed with hardened steel parts, positive stops and die cast body to meet the rigors of high-use applications.

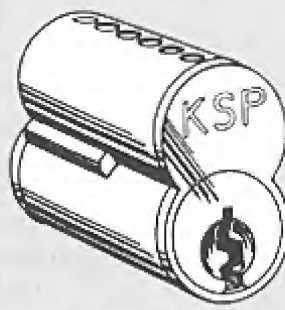


Circle 284 on Rapid Reply

KSP's New Core Products

Interchangeable core products, available from Killeen Security Products, are interchangeable with Best Arrow, Eagle, Lockwood, Falcon and Marks. A thru L plus the new KMT-300 keyways are also available.

Killeen also manufactures other products such as housings, key blanks and miscellaneous tools and an interchangeable core padlock line will be available in August, 1990.



Circle 286 on Rapid Reply

Kwikset's New Installation Kit

A new "mini" installation kit for installing locksets and cylinder deadlocks on wood and most metal doors, is now available from Kwikset Corporation.

The kit, designed especially for do-it-yourselfers, includes a 2 1/4" hole saw with mandrel and a special 1" bit made of heat-treated steel for boring through most residential metal doors.



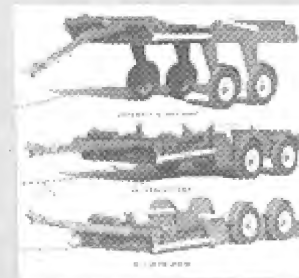
Circle 283 on Rapid Reply

Lifetime Products' Lift-A-Load

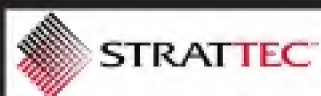
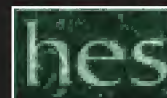
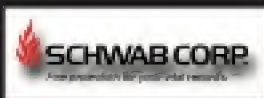
A new 15,000 pound capacity lift-a-load trailer is now available from Lifetime Products.

Lift-a-load is an elevating platform trailer that raises to 52" or can lower flat to the ground with a maximum payload of 15,000 pounds. This can be done at 30 m.p.h. or 12,000 pounds at 55 m.p.h.

Lift-a-load can be stopped at any height for quick, convenient material transfer and is ideal for transporting low ground clearance items such as lift trucks, sweepers, scissor lifts, rollers and mowers.



Circle 285 on Rapid Reply

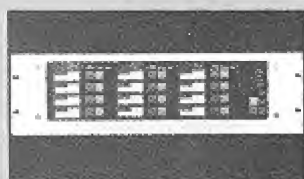


Rixson Introduces Door Monitor

Rixson-Firemark's door status panel provides complete monitoring and control of doors by incorporating magnetic locks used in door control systems.

The panel featuring a visual multi-color LED display, indicates the status of each door or opening in the facility. A switch control allows setting the conditions of each opening manually, with settings of "lock/unlock," "release," and "reset."

The Rixson Door Status Panel is useful for perimeter protection and selected area control in office buildings, hospitals, stadiums, sport complexes and schools.



Circle 225 on Rapid Reply

Rockford Systems' Product Brochure

Rockford Systems, Inc. releases a new free product brochure on lockout/tagout providing information on padlocks, lockout hasps, and tagouts.

Featured in the brochure is a complete line of lockout products for the hazardous energy sources associated with machinery and includes the O.S.H.A. regulations for "The Control of Hazardous Energy (Lockout/Tagout)."



Circle 226 on Rapid Reply

Norton® Introduces Product Catalog

A new, 12-page brochure highlighting Norton's complete line of door control products is introduced by Norton Door Controls to provide technical and specification information on the company's full line of ANSI Grade 1 surface and concealed door closers, closer/holder releasing devices, electromechanical closer/holders and electromagnetic door holders.



Circle 223 on Rapid Reply

PMS Products' Boeshield T.9®

Boeshield T.9® designed by Boeing Aviation is based on a unique combination of 13 solvents, oils and a wax that remains as a barrier film after the other components have evaporated. Boeshield T.9 has the ability to reach deeply into assembled components, dissolve minor corrosion, displace moisture, and leave a resilient coating that will be effective for years.



Circle 224 on Rapid Reply

SanBar's New ProxiKey System

SanBar Technologies, Inc.'s ProxiKey single door proximity access control system consists of a complete reader/controller that installs easily in a single-gang backbox, and contains individually coded proximity key fobs.

The ProxiKey System is well suited for both commercial and residential applications, such as door lock and gate control. It can also be used to simultaneously disarm or shut off an alarm system.

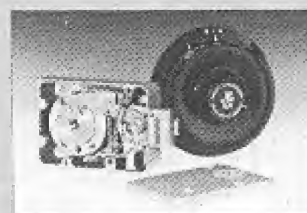


Circle 229 on Rapid Reply

S & G's New Scrambler Lock

Sargent & Greenleaf introduces The Scrambler, the only lock specifically designed to reduce theft in high cash storage safes.

The Scrambler is a three-wheel combination lock, featuring a uniquely engineered springloaded "hook-like" mechanism to interact with the single-piece, brass-forged lever. This mechanism scrambles the wheel gates away from the lever fence the instant the bolt is retracted.



Circle 230 on Rapid Reply

Body Works' New Ready Vans

Reading BodyWorks, Inc. introduces two new models of its versatile, roomy ready van work vehicle combining the secure compartments and accessibility of a service body with the workroom and cargo area of a full size van.

Reading's two new versions offering up to 73" of headroom and a walk-through opening between the cab and van, will have a universal size of 124" to fit available cutaway chassis.



Circle 227 on Rapid Reply

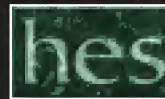
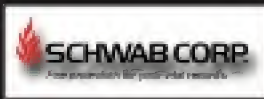
Reed Hardware Adds Exit Device

Reed Exit Hardware adds the 9000 Series to its line of exit devices.

The high-style design 9000 Series is a full-line group of exit devices, featuring a full latch cover for commercial doors, and a slim line cover for aluminum and narrow stile doors.

The devices are available as a rim, mortise, vertical rod, and concealed vertical rod with a choice of popular architectural finishes. The pushbar may be ordered in a variety of mix-or-match finishes, including back and wood grain.

Circle 228 on Rapid Reply

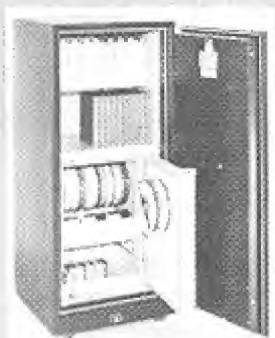


Schwab's Mixed Media Safe

A mixed media safe from Schwab Corp. provides unsurpassed fire protection for both vital paper records and EDP media stored in the same safe.

The safe is manufactured in the U.S. and is classified by Underwriters Laboratories as a Class 350/125 degree-one hour record container.

The safe interior can be customized to meet each customer's storage needs by using various combinations of interior components

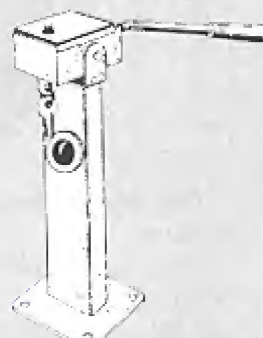


Circle 233 on Rapid Reply

Se-Kure Controls' Pan-n-Tilt System

The new camcorder pan-n-tilt security system from Se-Kure Controls is designed to pan 360 degrees, tilt 350 degrees and swivel while providing security against camcorder thefts.

The security system can be used on all cameras and camcorders with a tripod mounting hole, by placing the camera mounting screw into the camera's tripod mounting hole and the other end of the screw into the hole in the steel housing.

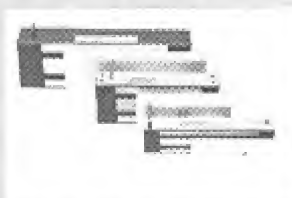


Circle 234 on Rapid Reply

Securitron Expands Magnalock Line

Securitron introduces the completion of its full line of electromagnetic locking devices for all types of door and gate applications and is available in three versions of holding force. The Magnalock can secure any door or gate without using any moving parts.

The Model 32, the newest lock in the Securitron line, is 8"x1.5"x1.67" and provides for 600 pounds of holding force. It is perfect for internal traffic control doors and sliding doors where high security is not a requirement.



Circle 235 on Rapid Reply

Sentry's® Fire Protection Chest

The Model 1710 fire-safe media chest from Sentry Group is a convenient, affordable protection for vital records stored on computer media.

Since computer software and diskettes are more vulnerable to heat and humidity than paper, Sentry's media chest maintains an inner temperature below 125 degrees and humidity below 80 percent, when subjected to temperatures up to 1550 degrees for a half hour.



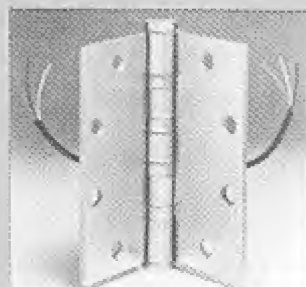
Circle 236 on Rapid Reply

Soss & Company's Electric Hinges

Henry Soss & Co. introduces a three electric hinge series designed for full mortise applications.

The electric monitoring hinge contains a concealed switching by using a single pole double throw type. This senses when a door is opened.

The electric through wire hinge is used where continuous wires are required to pass from the jamb through the hinge and into the door invisibly. This allows the necessary passage of current and signals.



Circle 241 on Rapid Reply

Auto-Sentry's™ Remote Auto Alarm

A new remote control auto alarm designed specifically for the installer is added to the Auto-Sentry™ line of automotive alarms.

Speco's new AA-275 is a completely universal alarm system, encompassing all of the features most widely needed by the installer. It contains an FCC approved remote control, status LED indicator, a high powered compact siren, and a relay for either starter kill or parking light flashing.

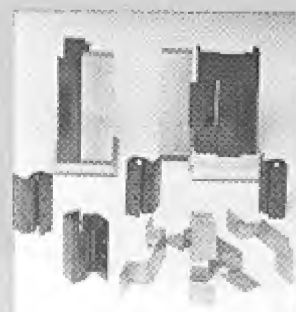


Circle 242 on Rapid Reply

Stanley Hardware's Concealed Hinge

Stanley Hardware introduces a 4½" concealed architectural hinge that eliminates hinge lines, and allows for greater freedom of design.

The concealed hinge is an exclusive product of Stanley Hardware and comes with a lifetime guarantee. Also available with the hinge, is reinforcement which permits local conversion of stick frame material to expedite delivery.



Circle 243 on Rapid Reply

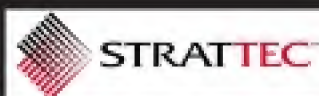
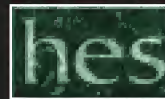
Tane Offers New ¼" Recess Contact

Tane Alarm Products' part number RFM-25 recess contact with oval flange is 1"x.25" and has a ¾" gap using a 1"x.25" magnet.

Tane's RFM series uses a deactivated rhodium plated reed to insure non-stickiness. Various magnet sizes and gaps are available.



Circle 244 on Rapid Reply



Trans-Atlantic's Push Paddles

Trans-Atlantic Company introduces a newly engineered and designed push paddle for narrow stile trimline aluminum doors.

It is available in both push and pull types, right or left hand and in US 28 and durondic color finish. It comes with unique constructional features that prevent spring breakage and insures long and efficient operation.



Circle 245 on Rapid Reply

Trine Products' Time Delay Unit

Trine Products Corp. announces a new Trine Time Delay which operates on 16 to 24 volts AC or DC, and can be used with all standard electric strikes AC or DC.

The unit's slim design allows for ease of installation in a limited space.

Featuring adjustable timing which can be set to suit the specific needs of the installation, the TD-3 will increase the life of an electric strike by creating a smoother controlled operation.



Circle 246 on Rapid Reply

Vigilante Barriers' Window Barrier

Vigilante Burglar Barriers introduces a modular window barrier with the look of custom ironworks that is easy to install and stock.

The six standard size panels can be either coupled together or stacked to fit any size or shape of a window and can have an inside or outside installation.

An optional swing hinge kit is available, along with "couplers" to make window widths wider. All options are of heavy duty steel construction.



Circle 247 on Rapid Reply

Weslock Takes On A New Look

Weslock has made major packaging changes by updating its 10 year old design with vibrant colors and a contemporary look, in an effort to provide the company with a new up-scale image.

Major changes in the packaging include a sophisticated marbleized-look background with easier to read product information and the backgrounds are color-coded using bold colors according to their use.



Circle 248 on Rapid Reply

Yale Offers Door Hardware Line

Yale Security Inc. announces the addition of the Valli & Colombo line of door handles and decorative hardware, available for the first time with Yale's steel-case mortise lock and the Valli & Colombo cylindrical and tubular locks, to its product line.

The Yale/Valli & Colombo designer line is available in 34 rose and 34 es-cutcheon designs for both residential and commercial applications and is featured in a new full-colored brochure.

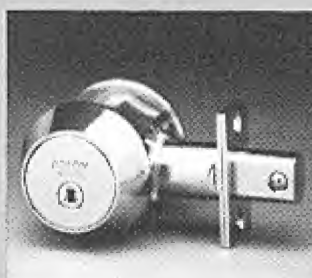


Circle 217 on Rapid Reply

Abloy Security's Disklock System

Abloy Security Inc.'s Disklock keys are protected by U.S. patents and are limited to factory authorized dealerships.

The security locks have physical strength capabilities, pick resistance and extensive masterkeying capabilities combined with protected key duplication, making it a strong security system.



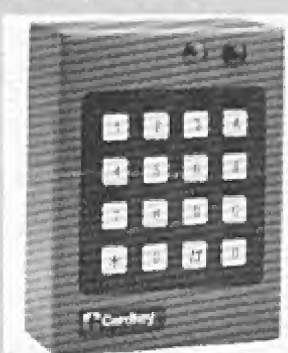
Circle 218 on Rapid Reply

Cardkey Systems Door Controller

Cardkey Systems, Inc. introduces the PASSkey 2000 stand alone keypad door controller, a cost-effective answer for smaller applications where selective control of a single door or access point is desired.

The door controller is a compact, wall mounted unit including built-in electronics, red and green status indicators and a durable 16-button keypad.

To gain entry, the user simply enters their unique ID number and corresponding PIN Code.



Circle 219 on Rapid Reply

ESI's New Borescope

A borescope from Electro Surgical Instruments Co., for the professional locksmith, has served lock and safe professionals for 20 years.

It is available in a variety of kits and provides an illuminated view of lock mechanisms, interior safe walls, safe ways and virtually any concealed area accessible through a 1/4" opening.

The optical system provides a natural, comfortable view without the necessity to make any focusing adjustments and accessory items are compatible with the scope's power supply and cord.



Circle 220 on Rapid Reply

Information From ALOA

At its March 6, 1990 Board of Directors meeting in Orlando, Florida, the Associated Locksmiths of America, Inc. (ALOA), announced a new lobbying initiative at the federal level to promote national registration of locksmiths. Chairman of ALOA's Legislative Committee, Jon Payne said, "The main thrust of the legislation would be to require locksmiths to obtain a federal permit that would prohibit convicted felons or criminals from practicing locksmithing. We also will try to make it unlawful for a person to possess lockpicks without a permit."

While Payne indicated that the exact language of the Federal Locksmith Registration Act of 1990 has yet to be finalized, he emphasized that ALOA has taken the lead in the security industry to address the sensitive issue of eliminating the criminal element from the locksmithing profession. "It is time to resolve the issue of policing our own ranks. Whether it is before a Congressional hearing or in the trade press, let the debate begin," said Mr. Payne.

Supporters of the bill will seek to utilize an existing federal agency such as the U.S. Treasury Department's Bureau of Alcohol, Tobacco and Firearms to obtain this vital background information and enforce the new regulation. "The Gun Control Act of 1968 requires the Bureau to prevent criminals, felons, and drug addicts from obtaining a federal firearms license to sell firearms. To accomplish this, they examine every application and perform criminal record checks on the applicants. We want this type of background check for the locksmith profession," said Payne. ALOA will work to introduce a bill requiring registration of locksmiths in the 101st Congress through its Washington, D.C. lobbying firm of Chwat/Weigend Associates.

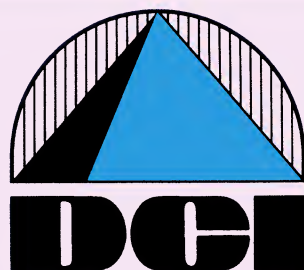
In other news, ALOA announces three new chapters for this organization, which are located in Southern Indiana, Northeast Texas, and Nevada. Chairman of the Southern Indiana Chapter is Lee Jurras, RL, of Washington, Indiana. Chapter Chartering was held

February 18 in Washington, Indiana. Vice Chairman is Dan Hill, CML, of Bloomington and Secretary/Treasurer is Rick Conner of Evansville. Contact Lee Jurras, RL, at (812) 254-7698 for meeting times and locations.

The Sierra Nevada Chapter of ALOA covers a 200 mile radius around Reno, Nevada. The Chapter was chartered February 20 in Reno. Chairman is Dean Yount, RL, of Reno, Nevada. Vice Chairman is Frank Irwin of Sparks, Secretary is David Anderson of Reno and Treasurer is Cal Hobson of Carson City. Contact Dean Yount at (702) 331-5307 for meeting times and locations.

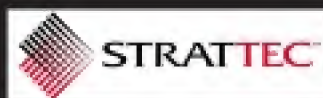
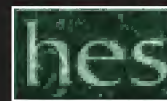
The Northeast Texas Chapter was chartered April 12 in Dallas. Officers are Chairperson Pamela Albright, CML, Vice Chairman R.C. Browning Sr., Secretary Sue Browning and Treasurer Larry Riddle. Contact Pamela Albright, CML, at (214) 285-1031 for meeting times and locations.

For further information about the ALOA Charter Program, contact David Moody, CAE at ALOA headquarters, (214) 827-1701. ■



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Principles Of Manipulation II

"A safeman who only drills, or one who only manipulates, is only half a safeman. Your job is to open the safe without damaging the security of the container."

by Bob Sieveking

Mr. Sieveking is also the author of The National Locksmith Guide to Manipulation. This book is a complete course on how to manipulate safe locks. It is available through this magazine.

When asked to do this article, I gave a great deal of consideration to the inherently sensitive nature of the material contained in it. To divulge the secrets of the art of manipulation to one not worthy of the knowledge, is to do a disservice to the craft as a whole. But to remain silent and allow mechanical attack of the lock or container to appear as the only viable method of safe opening is to do equal justice to the craft.

A safeman who only drills, or one who only manipulates, is only half a safeman. It is my belief that a safeman or locksmith is not paid so much for the act of opening a safe, as

for his specialized knowledge of how to do so without destroying the container or seriously diminishing its security. I will assume the lock to be in perfect working order and not of the manipulation-proof variety. That statement pretty much separates the artists and craftsmen from the knob-knockers and blacksmiths of the trade.

I prefer to reserve penetration as a last resort. The use of force, when finesse would accomplish the same end, is not the mark of a craftsman. I'll grant that some safe locks will resist the most ardent and tenacious efforts of even the most proficient manipulator. In these special cases, safe penetration is necessary. Only after an honest effort has been made to manipulate the safe, should penetration be considered. All openings must begin with a troubleshooting sequence that is intended to reveal the cause of the lockout. Until you understand the cause of the lockout, you cannot intelligently "place" a hole in the container or effect the



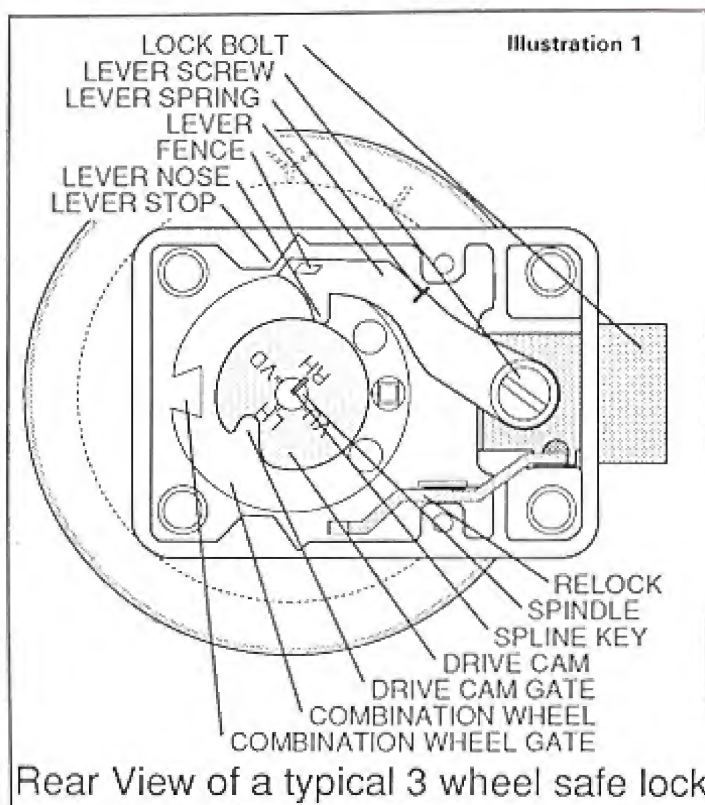
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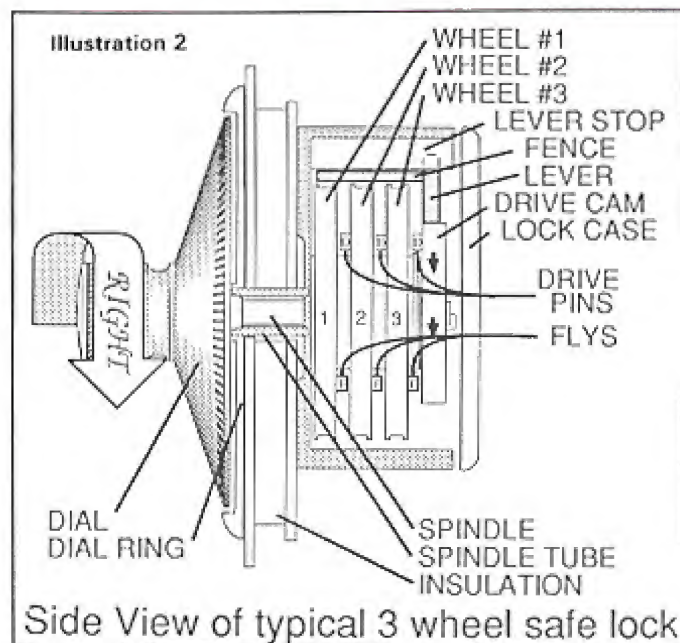
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opening in a professional manner. A thorough understanding of the lock and how it must function is basic to all safe openings.

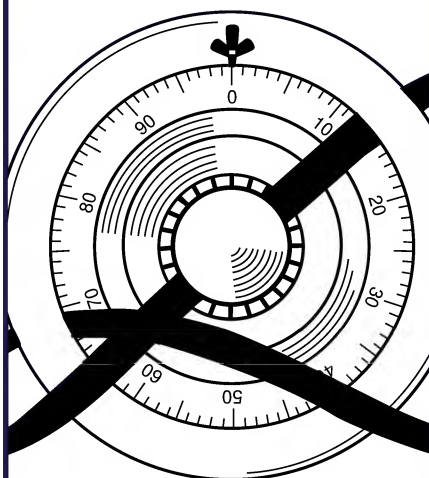
Before we can begin to understand the principles of safe manipulation, we must establish a common language of safe



nomenclature and a basic understanding of how a combination lock functions. Refer to illustrations one and two, following along as we review the components and operation of a standard three wheel combination lock.

The first mechanical group we will consider is the dial, spindle, drive cam and spline key. (Locate these components in illustration 2.) The dial and spindle are permanently bonded together and function as a single unit. The spindle is threaded on the end opposite the dial, and slotted to accommodate the spline key.

Lockmasters has a 44 year history of training security professionals.



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In this simplified diagram, the spindle extends from the rear of the dial and passes through the safe door and wheel pack. The drive cam is threaded onto the spindle shaft and locked in place by the spline key. Note that the dial, spindle, and drive cam are locked together and move as one mechanical unit. They rotate within the lock but do not change in their mechanical relationship. For our example, zero on the dial marks the geometric center of the drive cam gate.

The next logical group we must consider is the wheel pack. The wheel pack is made up of combination wheels, drive pins and flies. The combination wheels are mounted on the wheel post, which is part of the lockcase. The drive pins and flies of the combination wheels allow us to position each wheel independently. The movement of the drive cam and the combination wheels and how they interact is called "wheel action."

To manipulate this lock, we must have a thorough understanding of what is happening inside the lock as we rotate the dial. We must know which wheels are, and which wheels are not rotating during any part of the manipulation process. Understanding the wheel action will allow us to move and position each combination wheel independently. That is, without disturbing the position of the other two wheels.

The wheels are numbered one, two and three. They are numbered according to the order in which they are positioned, as the combination is dialed. The number three wheel is always the wheel closest to the drive cam. The number one wheel contains the first number of the combination, and must be properly positioned before the second number can be dialed. The number two wheel contains the second number of the combination, and must be properly positioned before the third number can be dialed. The number three wheel contains the third number of the combination and is always positioned last.

Let's examine the wheel action using illustration two. In the illustration, assume the dial is at 50. As we rotate the dial in a clockwise direction (right), the drive pin of the drive cam will approach the fly of the number three wheel. For simplicity of explanation we will say that at zero the drive pin of the drive cam will contact the fly of the number three wheel. Further rotation of the dial in a clockwise direction will cause the drive cam to carry the number three wheel around right (clockwise).

As we approach 50, the drive pin of the number three wheel will contact the fly of the number two wheel. As we pass 50, the number two wheel will begin to move in a clockwise direction, being carried around by the number three wheel and the drive cam. As we continue to rotate the dial in a clockwise direction, we will pick up the number one wheel at zero. The drive cam is now driving all three wheels around right.

Let's assume the first number of the combination to be 35. We will continue rotating the dial right, until the number 35 is directly below the opening index on the dial ring. This should place the combination gate of the number one wheel directly below the fence. Now we must reverse the rotation of the dial. As the dial is rotated counterclockwise (left) from 35, the drive pin of the drive cam must travel through 360 degrees of rotation, before it will again contact the fly of the number three wheel. Further counterclockwise rotation of the dial will carry the number three wheel around left.

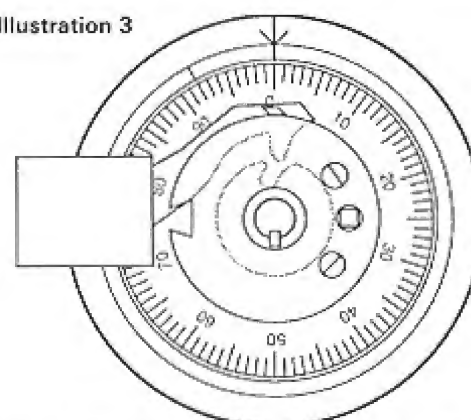
As we reach 35 the second time, the drive pin of the number three wheel will contact the fly of the number two

wheel. Further counterclockwise rotation of the dial will carry the number two wheel around left. The second number of our combination will be 90. Turning the dial counterclockwise (left) stop at 90. This should place the combination gate of the number two wheel directly below the fence, in the same position as the number one wheel. We now have two wheels parked in the proper position to open the safe. Reverse the direction of dial rotation. Turning the dial clockwise, the drive pin of the drive cam will contact the fly of the number three wheel the first time we reach 90.

We are now ready to position the third wheel. The third number of our combination is 62. Continue turning the dial in a clockwise direction until the number 62 is directly below the opening index on the dial ring. All three combination gates are now positioned directly below the fence. Counterclockwise rotation of the dial will bring the drive cam to a position below the nose of the lever, which will allow the nose to drop into the drive cam gate. The combination gates of the combination wheels are all properly positioned to accept the fence. This will allow the fence to enter the combination wheels far enough to drop the lever below the lever stop. Clockwise rotation of the dial, at this point, will withdraw the bolt and allow the safe to be opened.

The last mechanical group we will consider is the lever and fence (and bolt). The lever and fence are mechanically one piece. The lever is spring or gravity loaded to cause the nose of the lever to exert light pressure on the drive cam. As the drive cam is rotated to allow the nose of the lever to enter the drive cam gate, the fence will drop (see illustration 3) and rest on the combination wheels. If the proper combination has been dialed, the fence will enter the combination gates.

Illustration 3



Lever Nose in Drive Cam Gate

The nose of the lever will enter the drive cam gate, and clockwise rotation of the dial will allow the lever to withdraw the lock bolt. If the proper combination has not been dialed, the fence will rest on the wheel pack. The nose of the lever will be prevented from entering the drive cam far enough to allow it to withdraw the bolt. The lever cannot withdraw the bolt until it drops far enough to bypass the lever stop. (Refer back to illustration 1.)

This explanation of the three wheel combination lock may have seemed lengthy or tedious. But, without understanding the basic principle of operation, the following information will have little meaning. Much like impressing pin tumbler locks, manipulation allows us to use the lock to defeat itself. By understanding where to look for tolerances and learning how to read the indications we will be able to visualize the wheels of the lock without opening the door. By

carefully and properly reading the indications, we are able to find the gates in the combination wheels and ultimately open the safe.

Where do we look for indications?

What do these indications tell us of the locks?

How do we determine the proper combination from our readings?

Where do we look for indications of tolerances within the lock that will allow us to find the combination gates? As the dial is rotated slowly around, it should be possible to determine where the drop-in is located. The drop-in is that area of the dial where the nose of the lever is in the gate of the drive cam. What you feel and hear as you rotate the dial is the nose of the lever falling into the cam gate and the nose being lifted out of the cam gate. (See illustration 3.) When the lever is not being supported by the drive cam, the fence will be resting on the wheel pack. The diameter of the wheel pack will determine the amount of penetration the lever nose will have into the drive gate.

Rotate the dial to pick up the number three wheel and place it away from the drop-in area. This will allow us to inspect the drop-in area without interference or false readings that could be caused by the fly of the number three wheel. Now return the wheel to the drop-in area. Oscillate the dial right and left (clockwise and counterclockwise), allowing the drive cam gate to contact the lever nose on both sides. Where the drive cam contacts the lever nose during the clockwise oscillation of the dial, will be called the left contact point. (See illustration 4.)

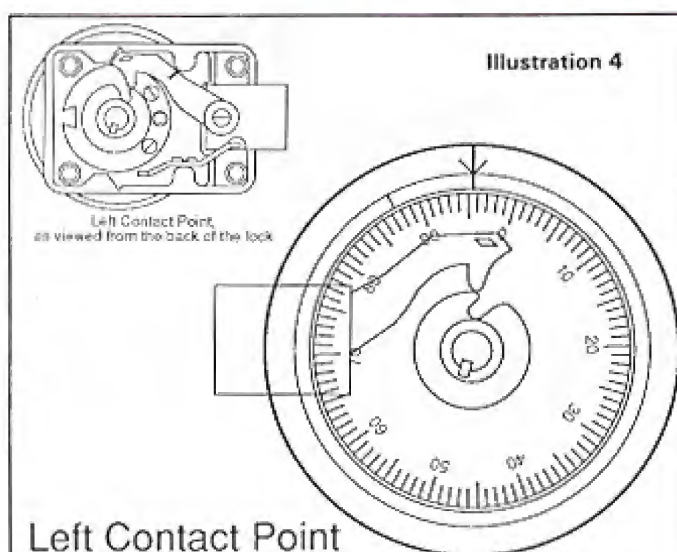
In our illustration we have determined the left contact point to be at $95\frac{1}{2}$. It is very important that, when reading contact points, we use an absolute feather touch. We are determining the point of "contact." If the dial is turned hard enough to lift the lever any amount, our readings for the contact point will not be accurate. Where the counterclockwise oscillation of the dial brings the drive cam into contact with lever nose will be called the right contact point. Again using the feather touch, we have determined our right contact point to be $4\frac{1}{2}$. (See illustration 5.)

We have now determined our left and right contact points. We have also determined our contact area, which is the distance from the left contact point to the right contact point. From $95\frac{1}{2}$ to $4\frac{1}{2}$ is 9 units, as measured by the safe dial. This measurement will become our window on the wheel pack. We will read the diameter, or changes in the diameter of the wheel pack, by using the distance between the left and right contact points as our gauge.

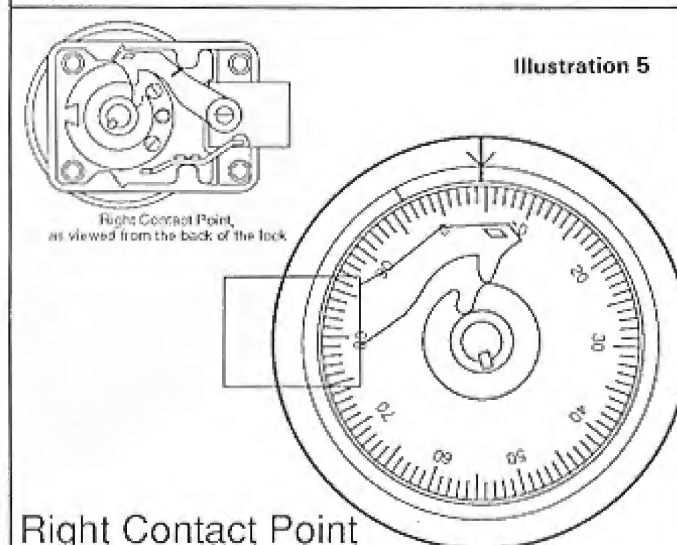
As the diameter of the wheel pack changes, the penetration of the lever nose into the drive cam gate will change. As the nose penetrates the gate deeper, caused by a decrease in the diameter of the wheel pack, the area between the contact points will decrease. Conversely, if the nose of the lever is lifted by a high spot on the wheel, the contact area will increase.

Because of the angled sides of the drive cam gate, the indications will be "amplified." The drive cam gate can easily be compared to the wide opening of a funnel, like the one shown in illustration six. As the nose of the lever enters the drive cam gate by a small amount, the distance between the contact points changes by a substantially larger amount. This mechanical fact is what allows us to measure very small changes in diameter of the combination wheels of the lock.

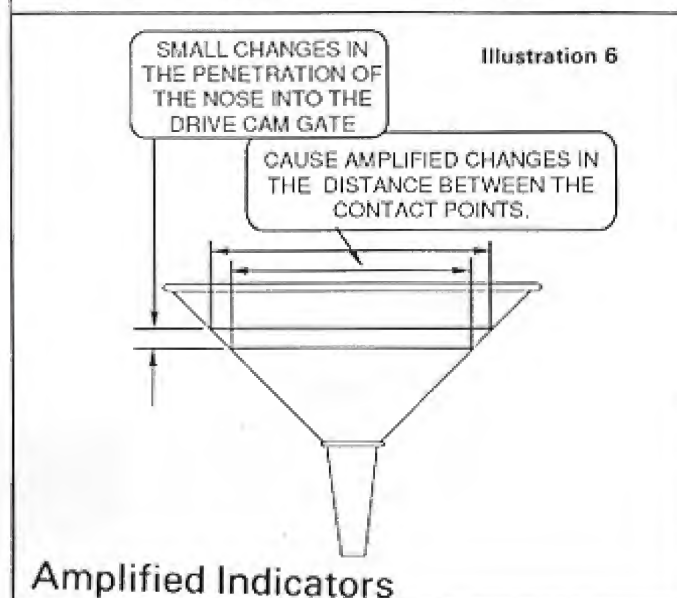
Illustration seven shows the effect or result of this increase or decrease in wheel diameter on the width of the contact area. Illustration seven-A shows the fence resting on the



Left Contact Point

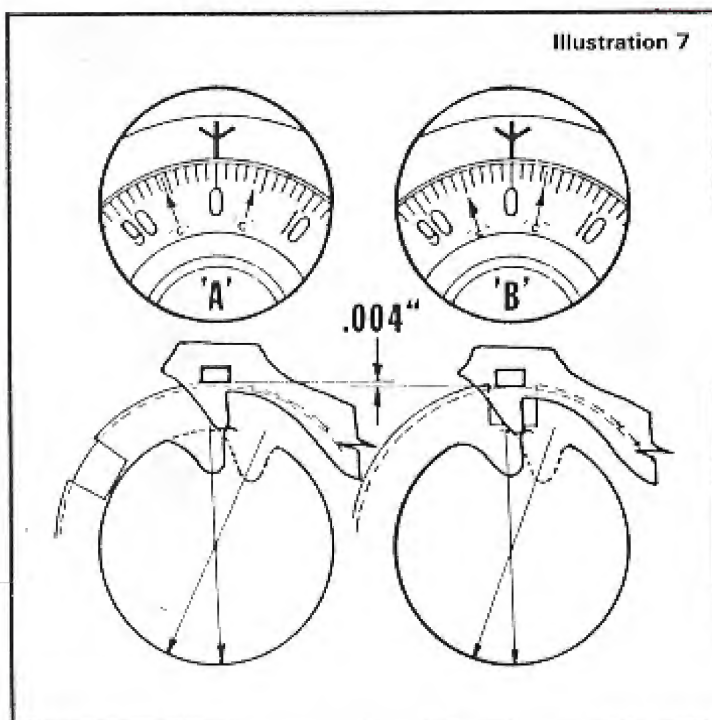


Right Contact Point



wheel pack. The contact points shown are $94\frac{1}{2}$ and 4. The contact area is $9\frac{1}{2}$ units wide. In our illustration, the fence is resting on the number three wheel. As the combination gate of the number three wheel is brought to a position below the fence, the fence will no longer be resting on the number three wheel but will now rest on the next higher wheel. The fence, and consequently the nose of the lever, has been allowed to fall approximately .004". (.004" is approximately the thickness

Illustration 7

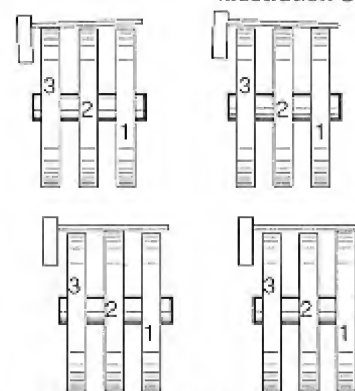


of a business card.) This has changed the contact area of one full unit (number). We have narrowed the contact area to 8 and $\frac{1}{2}$ units.

Try this little exercise: Slip a piece of paper under the fence of a combination lock in your shop, then check the contact area. Now remove the paper and check the contact points again. Now manipulate the combination wheels to

Illustration 8

LEVER
WARP AND
FENCE
TIPPING



HIGH AND LOW WHEELS
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place the combination gate of one wheel under the fence. Check your contact area. Do this for each wheel. Try it with two gates under the fence. The purpose of this exercise is to give you the experience in reading the contact points and confidence in the fact that the indications are there. The change in contact area will not always be as large as that of our illustration.

Now that we have established a basic understanding of the contact points and contact area, it will be necessary to understand what the indications are telling us of the lock. In illustration seven, the number three wheel was the indicating wheel. This will not always be the case.

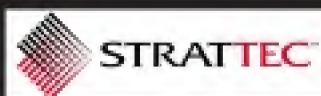
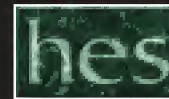
Any of the combination wheels can be giving indications of a low spot. Please note that the indication of a "low spot" is

Continued on page 181

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The Digital Door Lock

"The Digital Door Lock is a good product and is easy to install, after the instructions have been deciphered. It can take quite a beating from everyday use."



Send your lock and key questions to Jack Roberts, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Jack Roberts

In this article, and also in the next one, the author examines a brand of push button locks available to the locksmith. These locks offer certain features not found on a keyed lock.

All of us, at one time or another, have had a few choice words to say about imported products. Sometimes those words are nice and other times not so nice. Generally, those products from one of the Asiatic countries

seem to draw the most unkind words when we try to find a blank that will fit a keyway or attempt to repair or rekey an unfaithful reproduction of an American-made product.

Occasionally, an imported product comes along that seems to be a cut above the rest. The Digital Door Lock, made in Japan and distributed in the USA by Door Systems, Inc., appears to fit into the "cut above" class and is worthy of a few kind words due to its construction and operation. In this review, we will take a close look at the Digital Door Lock's construction, installation and service.

Printed instructions for an imported product, particularly those from the far East, cause problems for the installer. Sure, maybe you have had trouble with the German translation of "totpunktfeder" or the Italian translation of "tagli inclinati," but Japanese translations to English are always good for some head scratching and few chuckles. I suggest importers rewrite the installation instructions furnished with an imported product using terminology the

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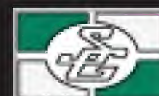
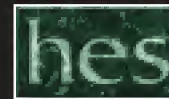
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locksmith understands, rather than burden the locksmith with trying to figure out exactly what the instructions mean.

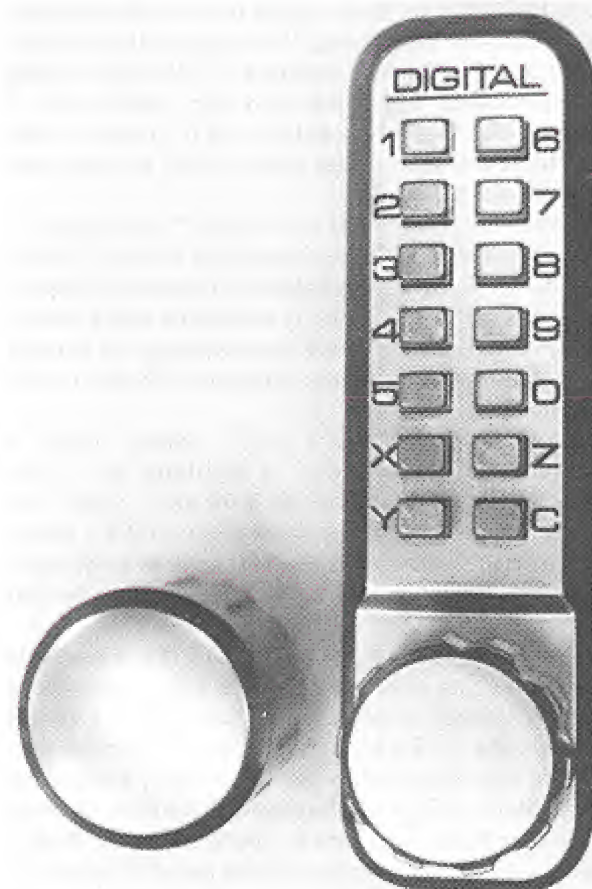
The installation instructions that come with the Digital Door Lock call a hole a "hole" in one place and a hole a "slot" in another. We have enough trouble with the standardizing of terminology in the locksmith industry without having to figure out that a "latchstopper" is actually a "hold back feature" or that a "pincette" is a tweezer. I note that Digital Door Lock's instructions are available in Spanish.

The Digital Door Lock is a good product and is easy to install, after the instructions have been deciphered. From our evaluative tests, it appears to be able to take quite a beating from everyday use.

Model #2235/2435 is part of Digital Door Lock's 2000 series of medium duty, mechanical, push-button access control systems. Actually, all of the 2000 series models are essentially the same with minor variations. Each variation changes the model number. Model numbers reflect the type of interior body, latch or bolt employed.

The exterior body is the same for all models and contains 14 push-buttons along with the tumblers and the unlocking mechanism. (See photograph 1.) Although the descriptions refer to "surface installation" and "mortise installation," it should be pointed out that the interior and exterior bodies of all models are "surface mounted."

Surface installation refers to the Model 2200, where the bolt or latch is an integral part of the inside body. Simplex Models 100-200 are also available for surface installation. Mortise installation refers to the models where a crossbore hole must be drilled when installing the latch or bolt. This is also done to tubular knob locks and deadbolt locks.



1. The exterior body of the 2000 series models.



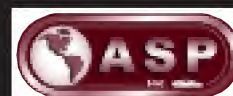
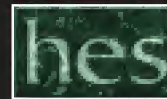
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The Model 2210 is the basic model from which the other mortise installations are derived. If you change the deadbolt of the 2210 to a deadlatch, it becomes a 2230. By installing two exterior bodies, one inside and one outside with a deadbolt, the lock becomes a 2210DC. (DC means double cylinder.) By replacing the bolt with a latch, the unit now becomes a Model 2230DC.

Earlier we mentioned having to decipher "latch-stopper," which meant "hold-back." This changes the Model 2230 to a Model 2235 by adding a slide button built into the interior body. A lever handle interior body makes the unit a Model 2435. (See photograph 2.) All are basic changes not varying from the function changes of the products currently on the locksmith market.

A key by-pass kit, (KBK 6 or 7), which utilizes a removeable core rim cylinder, is available for those installations where key operation is desired. Other enhancements include an easy grip front knob (EGFK), which snugly fits over the existing knob, and is secured by an allen type set screw. This increases the gripping surface by 200 percent.

An oversize escutcheon trim plate (DETP) kit is available which allows the unit to be installed to a 2 1/8" through bore and a removable high security thumb turn (HSTT), for all models except the 2435 lever handle. (See photograph 3.)

Deadbolts and deadlatches for all models, except the 2435, are available in 2 3/8" standard, and 2 3/4" with satin brass or satin chrome finish. 2 3/8" may be specified for the Model 2435, and an adaptor spindle permits the use of Schlage "B" series latches. A wide range of 10 finishes from antique brass to blue enamel are available for the lock bodies. Split finishes may also be specified.

Door preparation for the installation of the Digital Door Lock, mortise application, requires the use of a furnished template and the drilling of five 5/16" holes or a 5/16" hole, a 1-7/16" hole and a 55/64" crossbore hole for the latch/bolt which must be mortised for the faceplate. The doorframe must be drilled and mortised for the strike plate. A door, prepped for a 2 1/4" knob lock or deadbolt installation, requires only one additional 5/16" hole. (See photograph 4.)

After determining the proper handing of the unit, the latch/bolt is inserted into the crossbore and firmly attached using the furnished faceplate screws. The support pin is screwed into the proper handing hole of the exterior body. (See photographs 5 and 6.) Our installation is on a 2 1/8" prepped door, so we have to utilize the larger trim plate (DETP) on both the exterior and interior bodies.

With the exterior body held in place, the proper length spindle is inserted through the latch/bolt and into the exterior body. Since the placement of the spindle is critical for the correct operation of the lock, the angle *must* be towards the edge of the door. (See illustration 7.)

With the spindle properly installed, the interior body is placed into position, with the spindle entering the thumb turn/lever handle hub. The indicator dot of the thumb turn is in a vertical position towards the edge of the door or the lever handle. The interior body is then attached using the furnished mounting screws.

The operation of the latch/bolt can now be checked with the interior thumb turn/lever handle. The operation of the hold-back feature, if used, can also be verified.

The correct code number is now entered by first pressing "C" to clear the tumblers, and then entering the code. This is then packaged with each unit. The exterior knob should now



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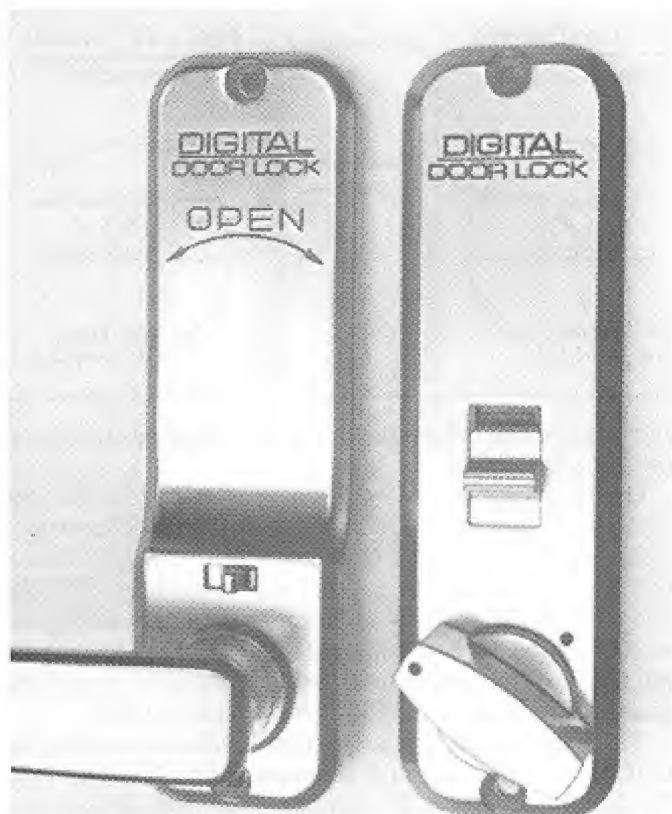
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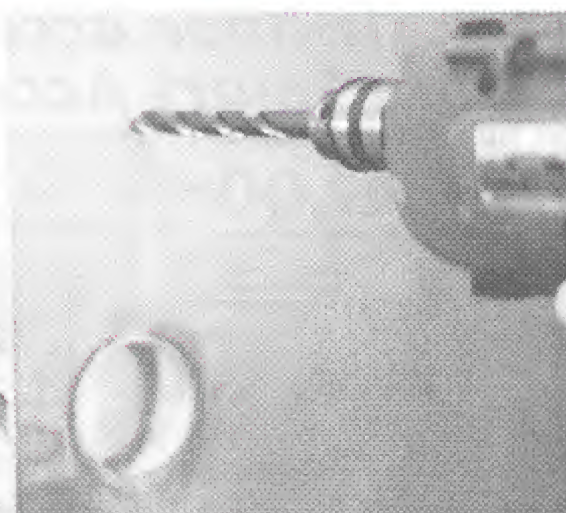


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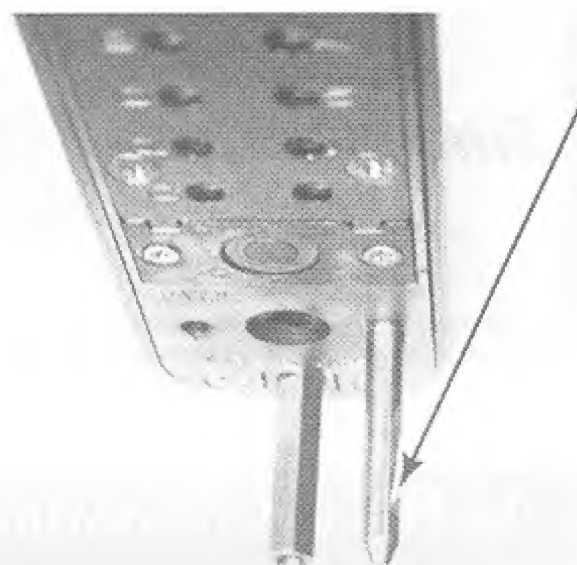
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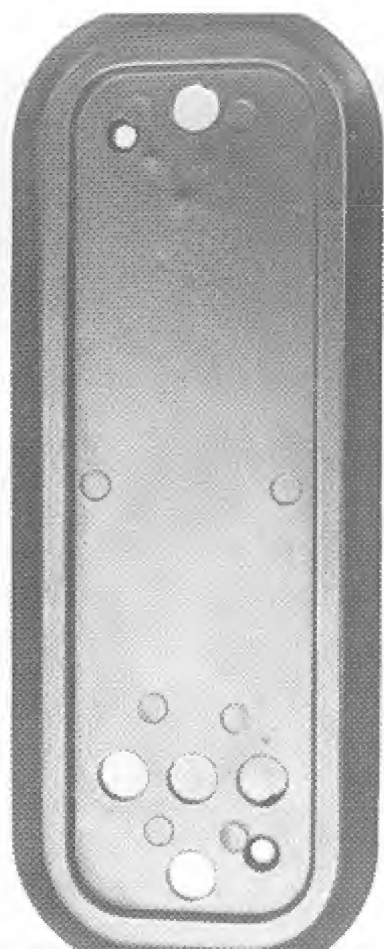
2. A lever handle interior body changes the unit into a Model 2435.



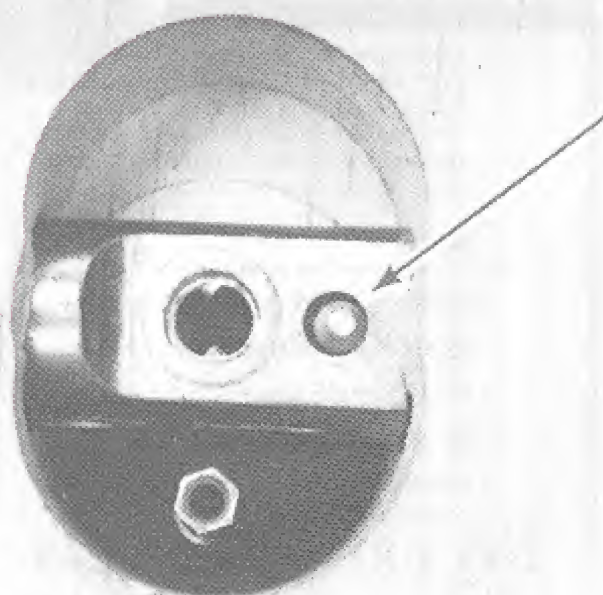
4. A 5/16" hole is being drilled for a knob lock or deadbolt installation.



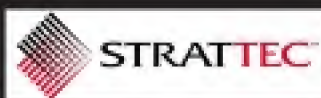
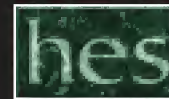
5. Support pin screwed into proper hole of exterior body.



3. An oversized escutcheon trim plate kit.



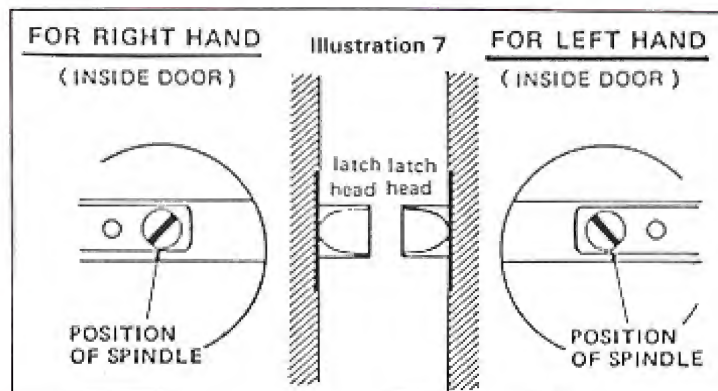
6. Close-up of support pin.



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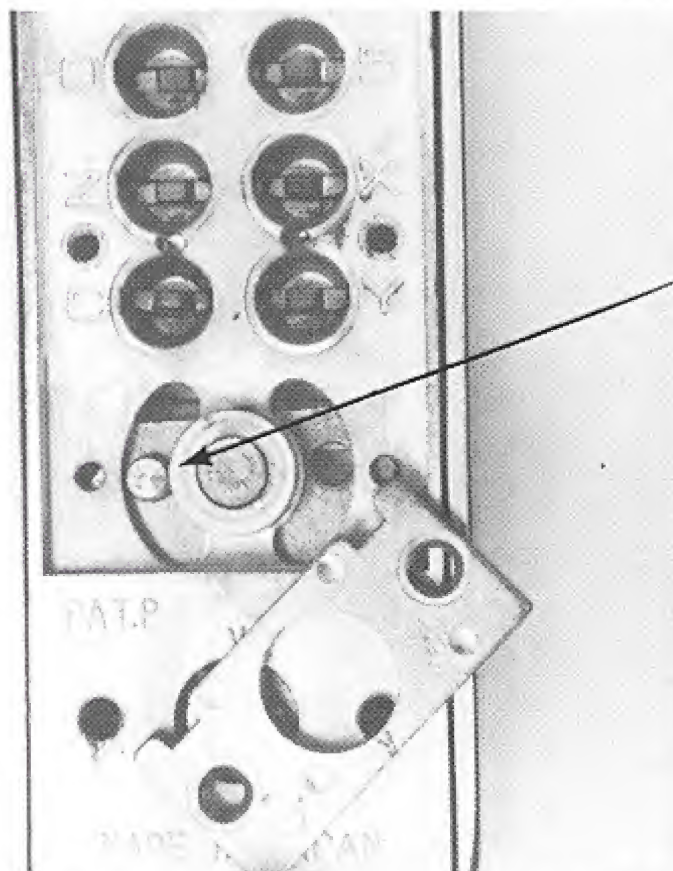


retract the latch/ bolt and return to the locked position when the knob is released.

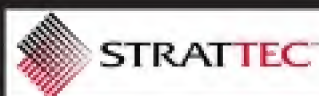
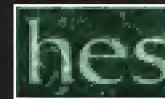
Our review installation was made by a locksmith unfamiliar with the Digital Door Lock. He started at the door with a packaged product and a closed tool box. The installation consisted of reading the instructions, removing a KW-400 and latch, drilling a 5/16" mounting hole, and installing the new latch, the oversize trim plate (DETP) and the support pin. The exterior and interior body was placed in position and the spindle and mounting screws were installed.

The final step in the installation involved checking the unit for proper operation of all components. This first time, the installation took 27 minutes. The same installation procedure was repeated a second time with simulation of drilling the 5/16" hole. This time it took 10 minutes. The reasons for this difference in time is because we did not change the handing of the lock and the factory-set combination was used.

Hand change of the exterior body for all models is performed while the unit is removed from the door. The handing pin is concealed beneath a small plate on the back of



8. The handing pin is revealed by removing the screws and plate.



the body, secured by two blue-colored phillips head screws. By removing the screws and the plate, the handing pin will be revealed. (See photograph 8.) The pin is removed with a tweezer and placed into the opposite hole. Then the plate and screws are replaced and the hand change is complete.

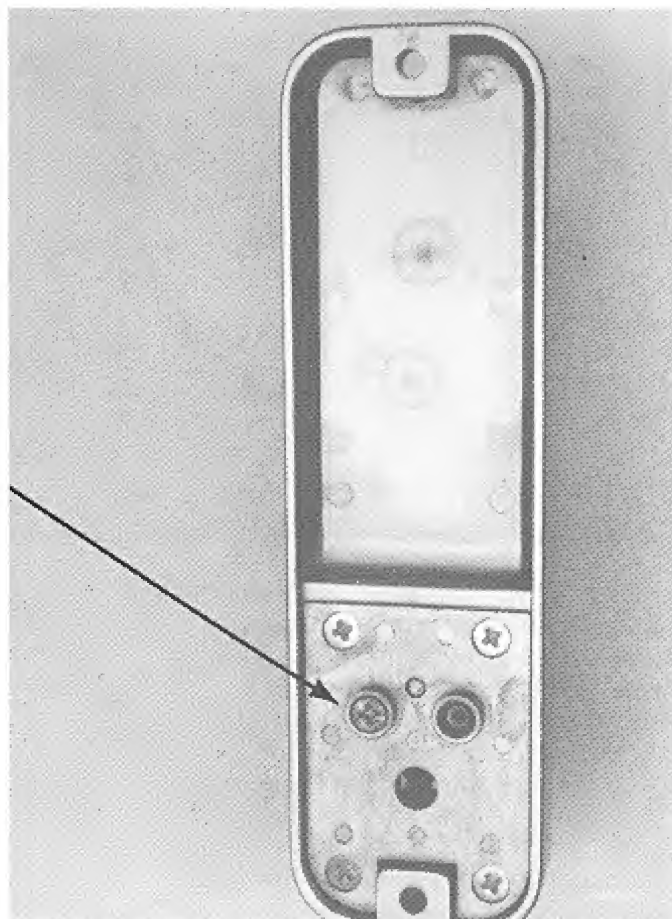
Hand change of the interior lever handle body is accomplished while the unit is removed from the door. This will reveal one blue phillips head screw on the back of the case. If the screw is located in the left hand hole, the unit is set for right hand. (See photograph 9.) If you remove the screw and replace it in the right hand hole, it changes to left hand operation.

The thumb turn body is non-handed, but must be installed with the indicator towards the edge of the door. Combination changes are simple and easy to use, after the mechanical operation of the locking mechanism is understood.

The "C" button is used for clearing the mechanism and releasing all buttons that may have been pushed. The proper combination may then be entered.

Any of the other 13 buttons of 1-0 and X, Y, Z, may be used in the new combination. Each button controls a tumbler that is referred to in the instructions as a "key tumbler" or a "keyless tumbler." This can sound confusing since no key is actually used. The "key" tumblers are those used for the combination and the "keyless" tumblers fill the other spaces. "Active" and "inactive" would be a better description. The tip of a key (active) tumbler is painted red and the tip of a keyless (inactive) tumbler is painted blue. The tip of the "C" (clear) tumbler is plain.

With the exterior body in hand, the combination can then be determined by viewing the tips of the tumblers. They are visible through the numbered holes in the back cover plate and correspond with the push buttons on the front. (See

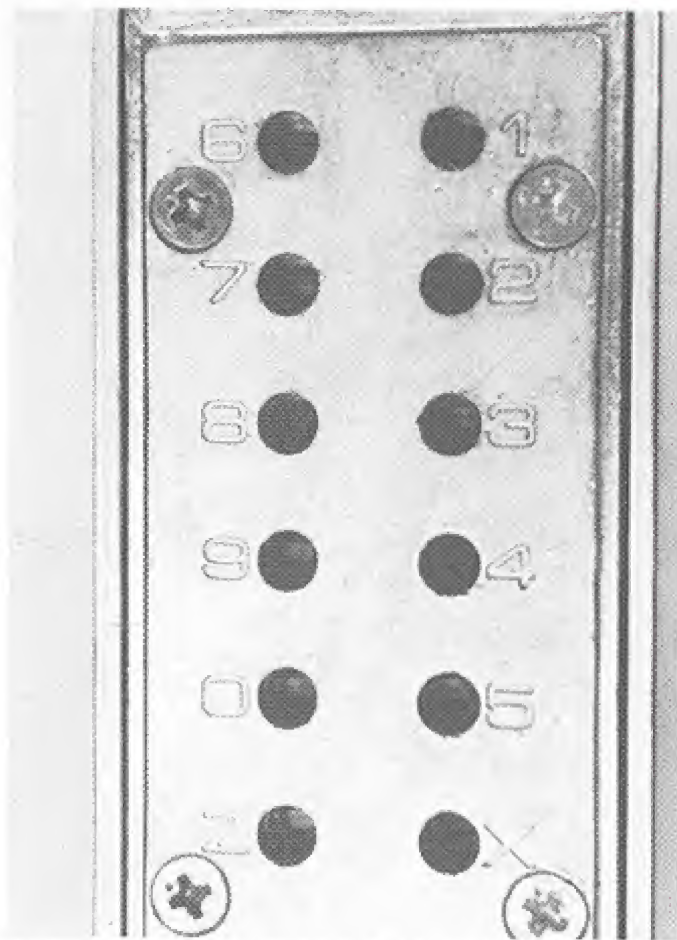
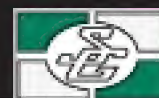
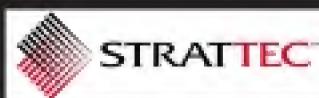
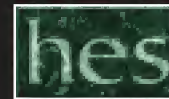


9. The hand change screw is located in the left hand hole.

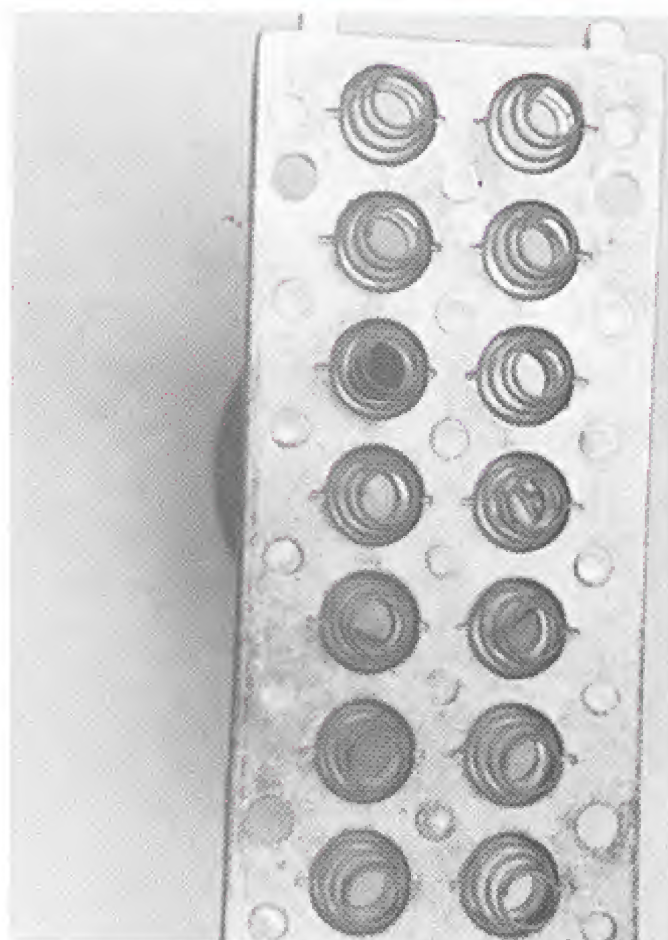


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10. The tips of the tumblers are visible through the numbered holes in the back cover plate.

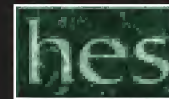


11. 14 springs are under the back plate.



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photograph 10.) The back cover plate is secured by four screws. When it is removed, access is available to all of the tumblers. Be careful removing the back plate, since there are 14 springs that could get away from you. (See photograph 11.)

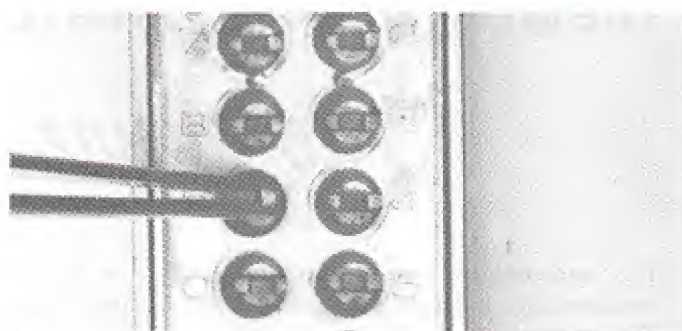
After pushing the "C" (clear) button, the tumblers may be removed and replaced using a pair of tweezers. (See photograph 12.) With a new combination selected, place red (active) tumblers in those positions and blue (inactive) tumblers in the others. Additional tumblers are packaged with each unit to increase or decrease the number of digits used in the combination.

Note that the tumblers have a square cut-out on one side. (See photograph 13.) When replacing the tumblers, this cut-out must be toward the outer edge of the body. (See photograph 14.)

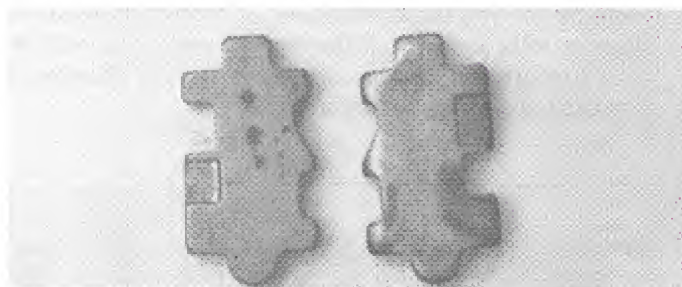
The mechanical operation of the unit is rather basic. A spring-loaded slide prevents the exterior knob from turning until the proper combination (red tumblers) is entered. But when the knob is turned to retract the latch/bolt, and is released, the slide returns to the locked position. Blue tumblers block the movement of the slide, and if a button with a blue tumbler behind it is pushed, the slide will not move to the open position.

It should be noted that the correct combination does not have to be entered in any particular sequence since a combination such as 1 5 7 9 can be entered as 5 1 9 7, 7 5 1 9, 9 1 5 7, or 5 9 7 1. It really does not make any difference as long as the red tumblers move out away from the slide. By pushing one button with a blue tumbler, the slide is then effectively blocked.

This feature can be considered effective or non-effective for a security system. There is also a good or bad side with



12. The tumblers are being replaced with tweezers.



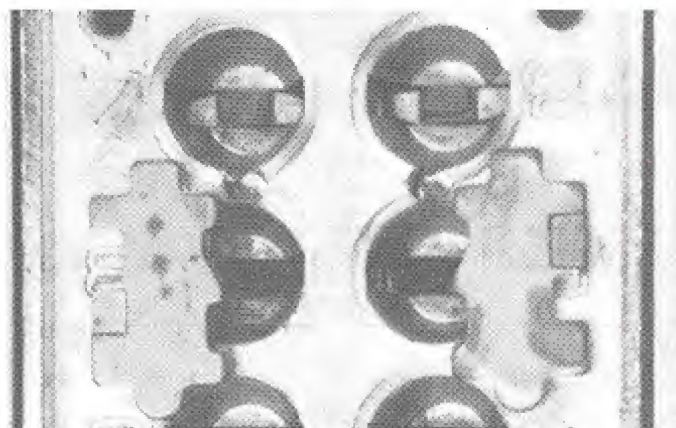
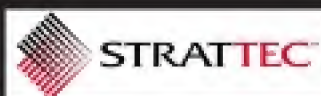
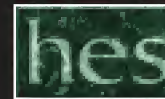
13. The tumblers with a square cut on one side.

the total number of active (red) tumblers used in the combination. It would seem that manipulation would be more difficult with three or four numbers than with six or seven. We set a four number combination and by using a computer printout of possible combinations, and pushed buttons for one hour without getting the correct combination. The push buttons on the Digital Door Lock are made of stainless steel. This will stop wear and tear usage from showing and is a deterrent to manipulation.



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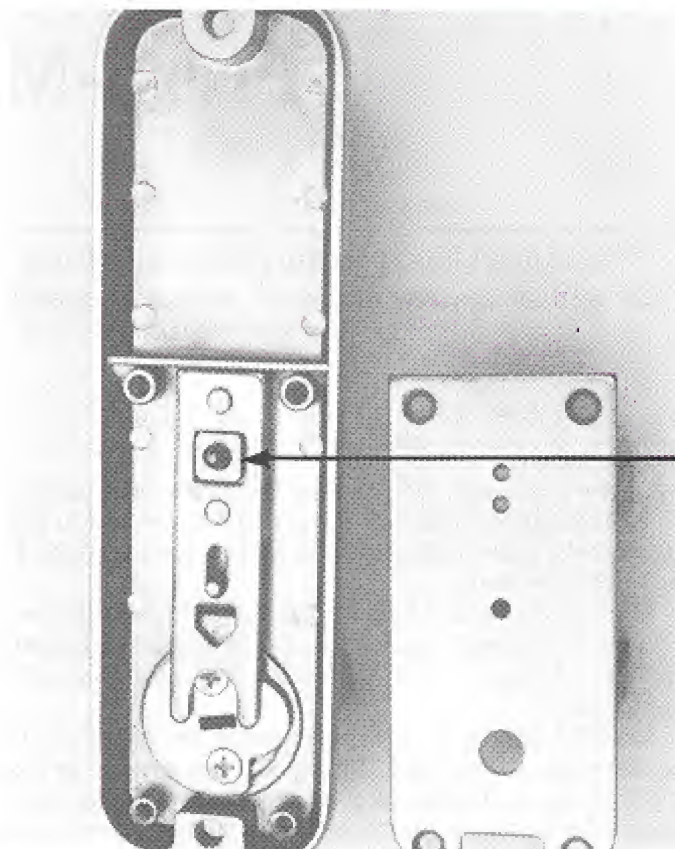


14. The cut-out is towards the outer edge of the body.

Service of this product is rather simple and only requires a minimum amount of tools. A phillips screwdriver, and a pair of tweezers or long-nose pliers will handle just about anything. The hold-back feature can be disabled, if desired, by removing the back plate from the interior body. To remove the plate, unscrew the four holding screws and carefully lift the cover. Be careful because there is a spring-loaded detent ball that can quickly get away. (See photograph 15.)

Then lift the hold-back slide from the body, replacing the cover. I would suggest leaving the detent ball in place for possible reactivation of the hold-back slide in the future.

The Digital Door Lock appears to be a well constructed unit. The body and knobs are made from high purity die cast zinc alloy, the buttons are made of stainless steel. The internal parts are made of brass, stainless steel, steel and diecast alloy.



15. A spring-loaded detent ball on the Model 2235.

For more information contact: Door Systems Incorporated, P.O. Box 576, Hatboro, PA 19040-0576, (215) 672-8087. ■

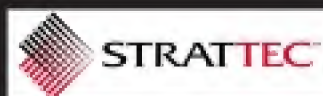
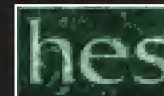
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Preso-Matic Locks

"These locks have been on the locksmith market for 25 years and have withstood the test of time as well as climatic and environmental conditions."

by Jack Roberts

A few years ago, we reviewed the Preso-Matic single combination door lock for you and it was fun to get inside the "double combination" to find out just exactly how and why it worked.

Made by the Preso-Matic Lock Co., the Preso-Matic has been on the locksmith market for 25 years and has withstood the test of time as well as climatic and environmental conditions.

It is FAA approved for airport security and is used by all of the major airlines, the FBI and is recommended by the FBI for bank use. It is also used and approved by GSA agencies and used in high security areas by many major manufacturing companies. The Preso-Matic can be adapted to almost any situation for either deadlatch or deadbolt applications.

The proven success of the Preso-Matic single combination lock and the need to adapt to a situation brought about the development of the Preso-Matic double combination lock. (See photograph 1.) The model bodies of the Preso-Matic are essentially the same with variations and adaptors making up the full line of Preso-Matic products.

The Model 8101 is a single combination lock with a $\frac{3}{8}$ " throw deadbolt, but change this to a 1" throw and the model

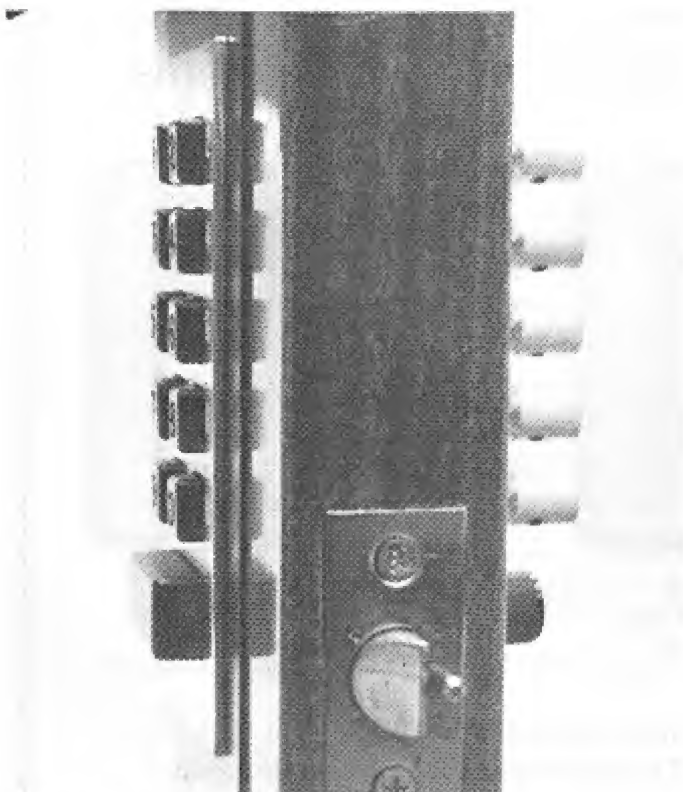
becomes an LT8102. The Model 8103 has a $\frac{3}{8}$ " deadlatch with a nightlatch. By removing the nightlatch, it becomes a Model 8103A. Preso-Matic has provided many variations to meet the requirements of the locksmith trade.

Door preparation for the Preso-Matic is a bit of a departure from the norm, since a $1\frac{1}{8}$ "x $5\frac{1}{8}$ " rectangular cutout must be made to accept the lock body. A 1" crossbore is then made for the latch/bolt. (See photograph 2.) Templates are provided with each unit to properly locate the preparation area, recommended at four feet from the floor to the bottom of the lock.

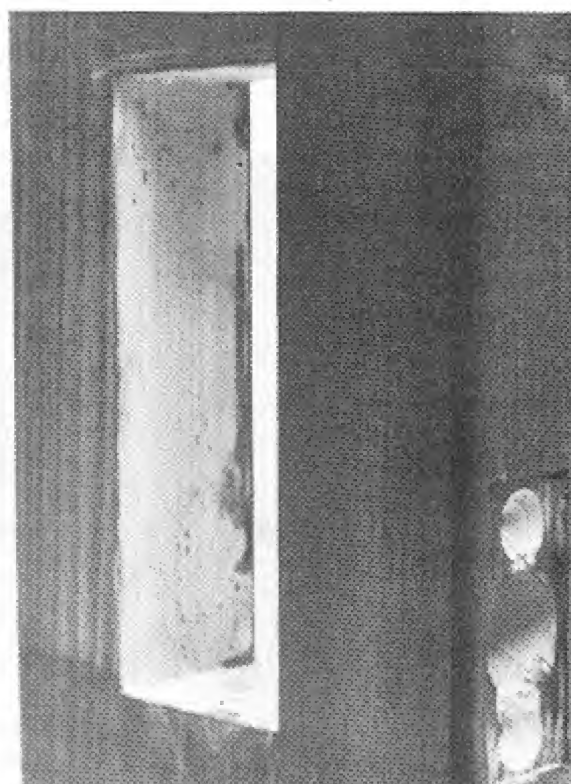
The rectangular cut-out can be made with a jigsaw or by boring a series of holes and then squaring the sides with a rasp or saw. Spacers are available for metal door installations and must be used for proper installation of the Preso-Matic.

Wood door installation of Preso-Matic's deadbolt models requires a $\frac{1}{2}$ " slot to be made inside the 1" crossbore hole to provide clearance for the deadbolt lug which pivots when the bolt is extended (see photograph 3) and retracted. (See photograph 4.)

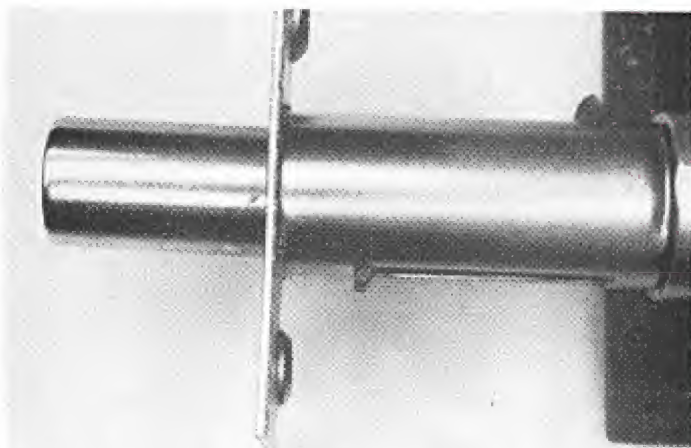
These slots are a little bit tricky to handle the first few times and requires a gentle touch to get them right. Practicing on a 2x4 piece of wood is an excellent safeguard



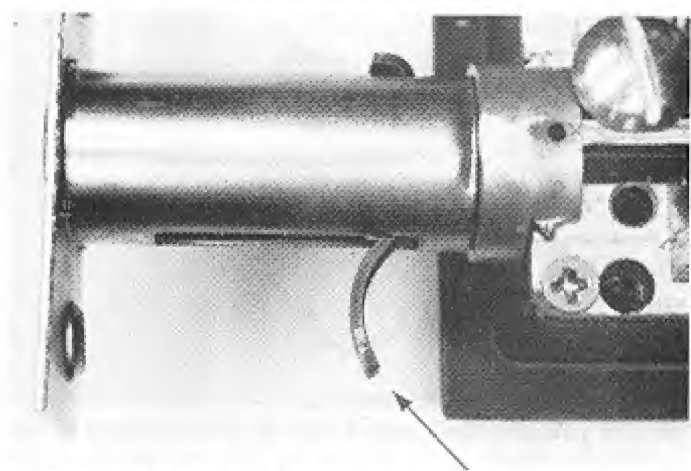
1. The Preso-Matic double combination door lock.



2. A rectangular cut-out and 1" cross bore is made in the door.



3. The bolt is extended with lug partially showing.



4. The bolt is fully retracted. Note full outward position of lug.

against damaging an expensive door. After making the 1" crossbore and mortising for the faceplate, use a 1/2" drill or boring bit and enter the 1" crossbore hole from the edge of the door and drill down at a 45 degree angle, extending this to a rectangular cut-out.

Repeat this procedure at the top of the 1" crossbore and use a 1/2" "sharp" wood chisel to remove the excess material. This provides a clean area for the deadbolt lug to move.

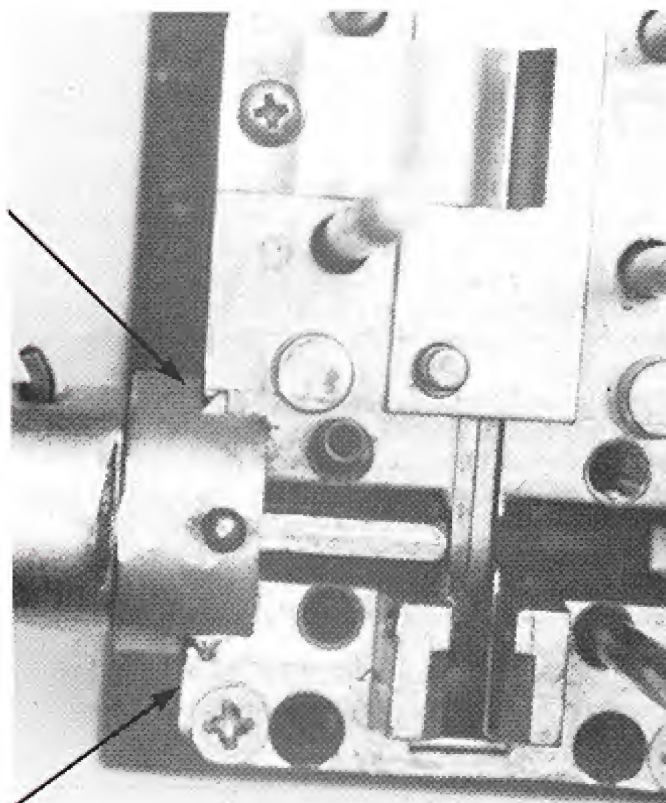
Care must be taken to leave enough wood behind the faceplate mortise to accept the mounting screws. The fill material of a steel door must also be removed to provide this same clearance for the lug to move. This may sound like a nasty preparation tactic, and it can be, if you are not careful with the drill bit and chisel.

Preso-Matic locks may be installed left or right hand, due to dovetail cut-outs on each side of the lock body. The cut-outs accept the end of the latch/bolt. (See photograph 5.) The latch/bolt is installed and securely fastened with the faceplate mounting screws and the lock body is placed in the rectangular cut-out.

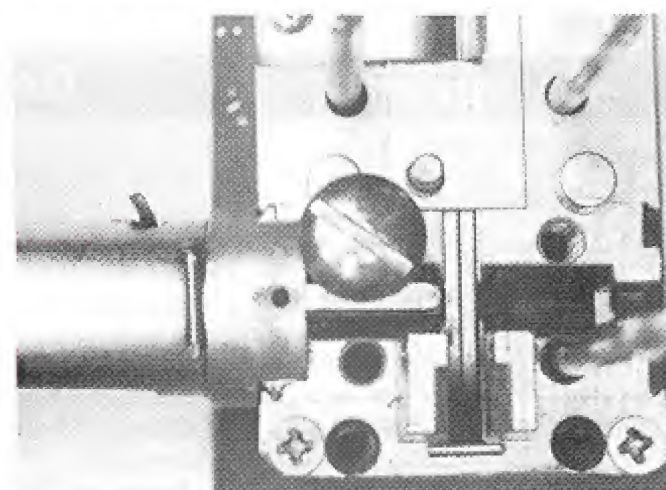
The dovetails are then matched to properly position the body and the latch/bolt. A large headscrew is installed to firmly hold the latch/bolt and the body together. (See photograph 6.) The reset button return spring must be installed under the large headscrew.

The Preso-Matic deadbolt is shipped with a brass holding pin to keep the bolt in an extended position until it is installed to the body. (See photograph 7.) Do not remove this brass pin until the bolt is installed, unless you are interested in spending some time reassembling the bolt mechanism. The inside cover is now installed with tamper-

proof screws using the TRS 49, a tamperproof screwdriver. Knobs in the pull pins are attached by two allenhead screws firmly tightened in each knob. No attempt should ever be made to turn the knobs.



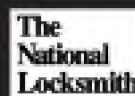
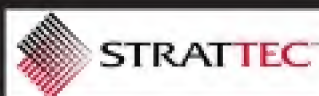
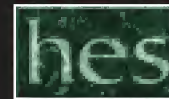
5. The dovetail cut-outs appear on each side of the lock body.



6. A large headscrew holds latch/bolt and body together.



7. A brass holding pin keeps the bolt in an extended position.



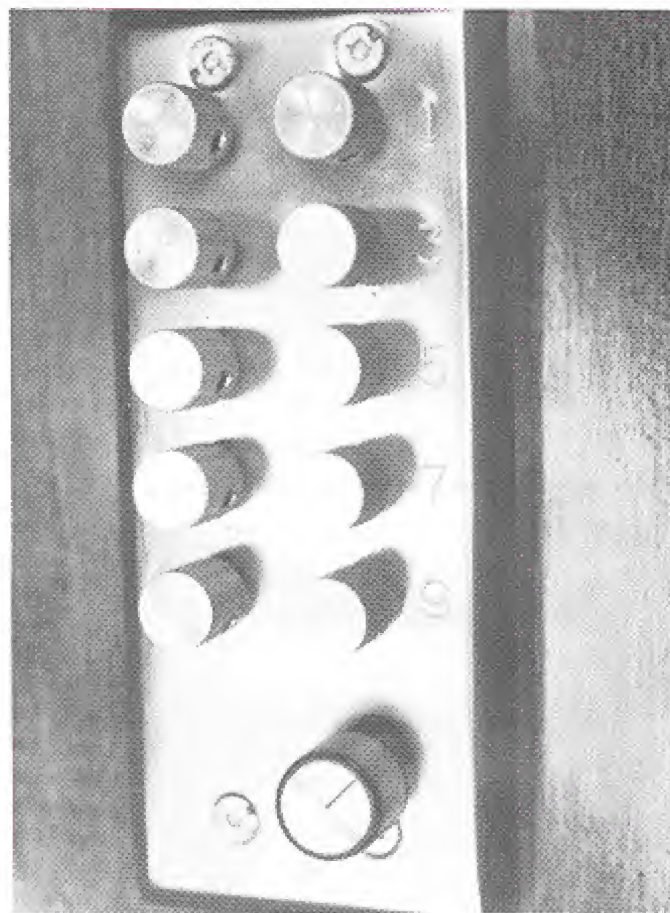
The pull pins are screwed into the pushbuttons of the exterior plate. (See photograph 8.) Although they are securely staked, they will unscrew if one makes a serious attempt.

When all of the mounting screws have been tightened, the unit is ready to be tested for proper operation and the combination should be entered by pushing the correct sequence on the exterior faceplate. When the last number is entered, the bolt should smoothly retract immediately. While applying firm pressure, the reset button on the front should extend the bolt to the locked position. Repeat this test using the inside pull knobs.

Correct placement of the bolt cavity and the strike plate on the door frame is essential to correct and smooth operation of the Preso-Matic lock. Since any binding of the bolt can cause a malfunction and/or a lockout, almost all lockouts which may occur as a result of a bound bolt can be overcome by vibrating the door after the last number has been entered.

To better understand this, let's take a look at the business end of the Preso-Matic, the combination slides. The slides come in pairs with the combination clearly marked. The "A" on one of the slides is for manufacturing identification only. (See photograph 9.) These slides are installed in a slot on the back of the lock body with teeth down and are held in place by the slide cover and slide cover tension springs. (See photograph 10.) The slides must be straight and flat with free movement in the slot.

The theory of operation is that the slides operate by force friction and gravity. Breaking this down, gravity causes the slides to drop to the bottom of the slot when the reset button



8. The pull pins are screwed into the push buttons of the exterior plate.

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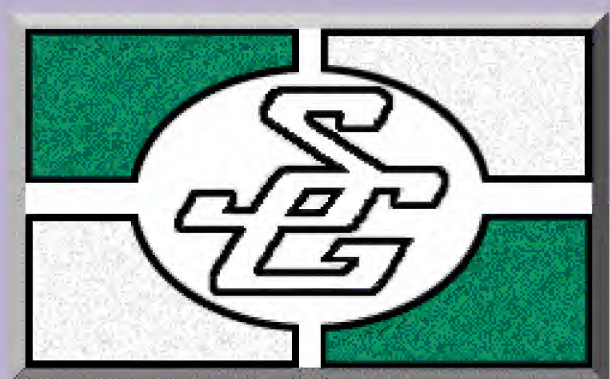
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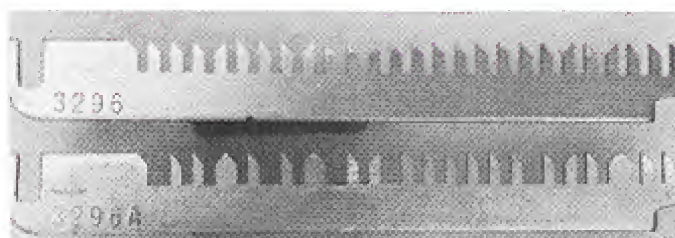
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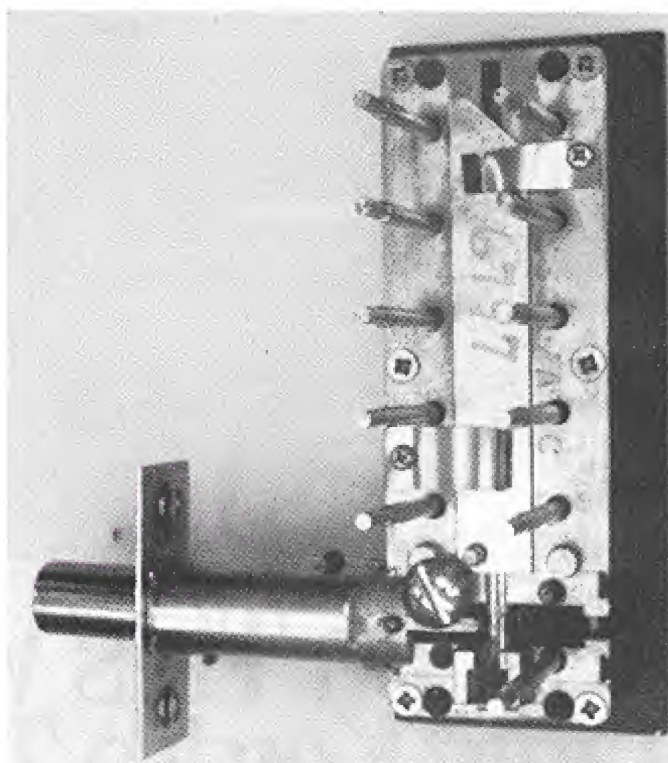


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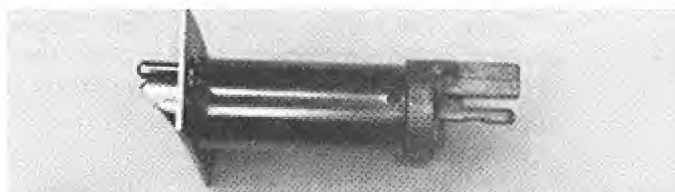
9. The combination slides of the Preso-Matic.



10. The slides are inserted in a slot on the back of the lock body with teeth down.

is pressed, (or the interior pull knob is pulled), blocking movement of the latch/bolt.

The latch/bolt contains a spring-loaded actuator which applies pressure to the side of one slide, creating friction between the two slides and one side of the slot. (See photograph 11.) Force is applied when an arm, attached to each button, enters the teeth of the slides when the button is pressed.



11. A spring-loaded actuator applies pressure to the side of one slide and creates friction.

Entering an incorrect number forces the slides down, or no movement if the slides are bottomed, while a correct number sequence will move the slides upward. Each upward movement lines up the teeth for the next correct number, but remember that friction created by the latch/bolt actuator is holding the slides in position and that the button arm is no longer in contact with the slides. When the slides have been forced to the top of the slot by the correct combination sequence, an opening in the slides lines up with the actuator.

The spring-loaded actuator moves into the opening and holds the slides up. The spring-loaded latch/bolt is then free to retract. Force applied to the reset button moves the end of the bolt and actuator clear of the slides. Friction is released

and the gravity causes the slides to drop to the bottom of the slot, holding the bolt in the locked position.

If you understand the force, friction and gravity theory, you will understand why the correct installation of the Preso-Matic is critical to the proper operation of the lock. A neutralizing spring, located at the bottom of the slide slot, assures that the slides are returned to the proper position to receive the arm of the push buttons.

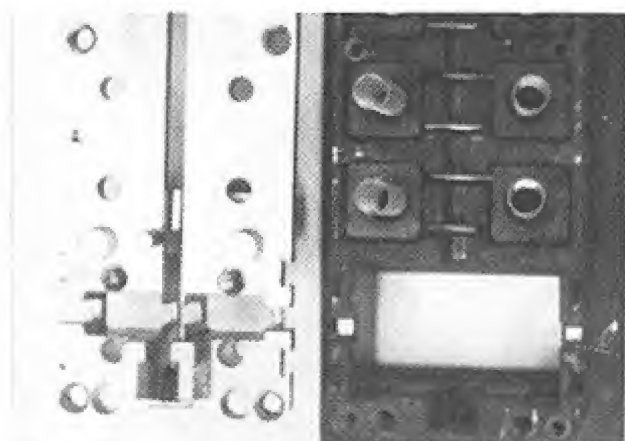
Combination changes of the Preso-Matic can only be affected by changing the combination slides which are available in pairs from the factory. These can be shipped from stock or can be custom-made to specific numbers requested by the end user.

Although four-digit models of the Preso-Matic are standard, seven-digit models are available by adding "7D" to the model number when ordering. Mastered combination slides can be provided for the four-digit models only. A pair of mastered slides has two combinations cut into each slide, six cuts for the master and four cuts for the change or an individual combination.

To change combination slides, the lock must be removed from the door. Use caution when dealing with deadbolt models. A brass pin, or similar pin, must be inserted before the lock body is removed. The slide cover tension springs, the slide cover and the existing slides are removed from the slot.

The new combination slides are placed into position to assure that the latch-bolt cutouts are at the bottom of the slot. The new combination number should be written on the slot cover. The cover and tension springs must then be installed. The lock is ready to be replaced on the door and checked for proper operation.

It would be rare to have to remove the bottom cover plate of the lock body, to reveal the return springs associated with each button. (See photograph 12.) The pull pins and reset button have also been removed for clarity.



12. The bottom cover plate of the lock body is removed to reveal the return springs.

Preso-Matic provides accessories and enhancements to meet varying installation requirements, including an electric strike, combo shield, various escutcheons, and an ASA strike plate.

The product is well constructed and service is straightforward with no tricky stuff, except for the brass pin in the deadbolt. I do feel that the instructions and descriptions could be prepared in a more understandable manner.

Keyless mechanical access control has a place in security designs and one or both of the two products we reviewed would appear to be able to meet the requirements of specific installations.

For more information contact: Preso-Matic Lock Co., 3048 Industrial 33rd St., Ft. Pierce, FL 34946-8694, (407) 465-7400. ■



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Humor:

On The Lighter Side

"Instead of bringing the car to us, they had managed to take the entire door off its hinges and were bringing it into the shop to have a key made."



by Sara Probasco

I wonder sometimes if all locksmith shops attract the types of items we do. Our backroom work area often hosts such treasures as a locking file cabinet drawer, a safe head or two, an old-timey lock for which we will be manufacturing a key from scratch, perhaps a panic bar, or a wall-unit of gym lockers. That is in addition to the usual lock boxes, padlocks and entry locks.

Once in a while, someone will wheel a motorcycle into the shop or leave a boat and trailer or an RV in the parking lot to have keys made.

We also seem to attract small auto parts such as gas caps, glove box doors, hub cap locks and occasionally something on a bit larger scale.

In our part of the world, many people drive old cars, and replacing an old steering column with a not-so-old one from the local used-parts yard is common practice. Apparently, the steering columns never come with keys, so it is not very unusual to find one propped in a corner or lying on the floor of our shop, awaiting the locksmith's attention.

One morning a man called and inquired about the cost of a key to be made for his vehicle. That evening he was planning to cross the border into Mexico. Since he had lost the key to his trunk, he would not be able to open it for inspection by the Border Patrol. We all heard tales about how the Border Patrol manages to open locked trunks when there is no key.

I told him what we would charge him to come out and make his key and added, as I always do, "But if you bring

the vehicle to our shop, you can save the cost of a service call. In fact, if the same key fits the doors, just bring a door lock into our shop, if you know how to remove it. That will save you a labor charge for us taking it out." The lowest price seemed to appeal to him, and he said he would bring it to us later in the afternoon.

"What time do you close?" he asked.

"Five o'clock," I replied.

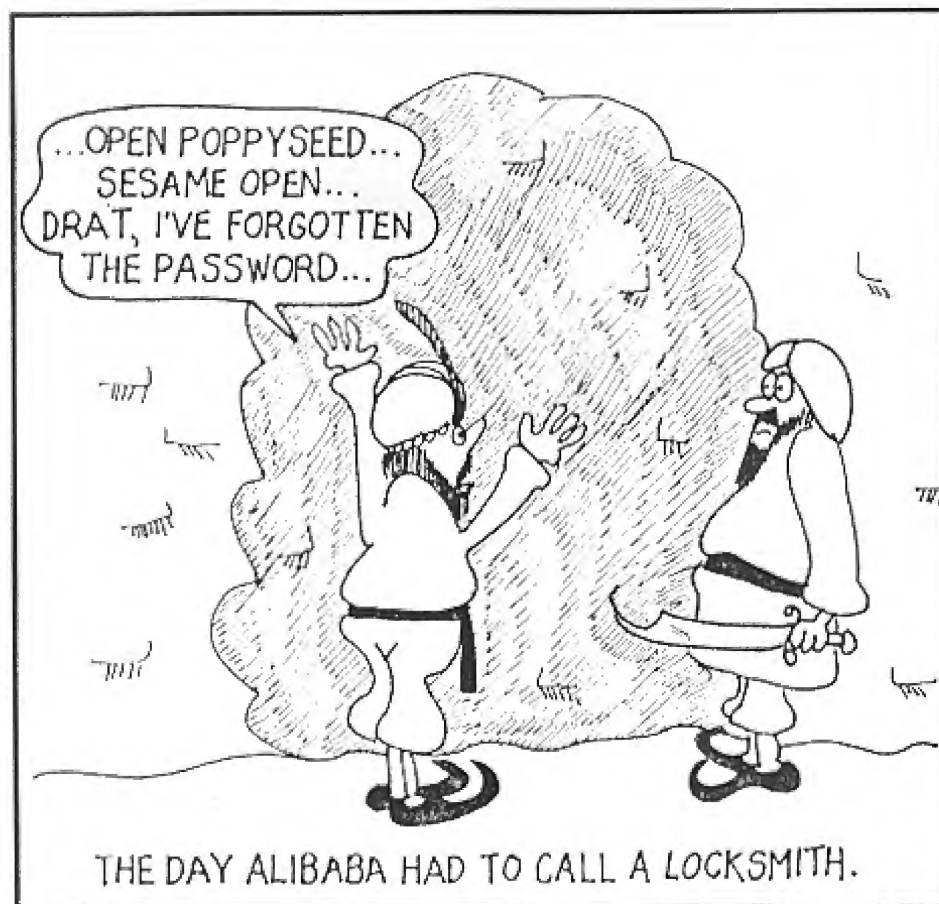
Later that afternoon, I noticed a vehicle parked across the lot from our shop. Two men appeared to be working on the door, although I could not clearly see what they were doing. Finally, at five minutes before closing time, the two men carried a large object

into the shop. Instead of removing the door lock, they had managed to take the entire door off its hinges and were bringing it into the shop to have the key made.

Sometimes the keys brought in, or the stories behind them, can be as interesting as the locks. A customer recently presented us an interesting tale about her key.

"Can you make me another key? I can't get this one to go in the lock anymore," she stated. With a trembling hand, the woman handed me an automotive ignition key that was blackened with the brass lands completely fused at the tip. I looked questioningly at her.

"It's been burnt," she replied to my



unspoken thoughts. I wondered how anyone could burn a key in that fashion. "My little girl did it," she continued while patting the head of a diminutive thumb-sucking youngster clinging to her skirt. "She stuck it into an electric plug." The woman's eyes filled with tears as she rolled them upward. "Oh, Lordy. I thought she was gone."

I looked at the melted key. The fact that the little girl had emerged unscathed seemed miraculous, despite her rubber-soled sneakers.

"There was this crackle and a flash of fire. Then a big puff of smoke," her mother continued. "At first, I thought the house was going up."

The neighbor who had driven the pair to our shop seemed more shaken by the incident than the little girl. "Can you believe she did that and she's not hurt? Her mama is in worse shape," he confided.

I looked at the woman and had to agree. "I think I'll have to go to the hospital," she said, her hands shaking. "My heart is still pounding." She put her hands to her chest.

"Why don't you sit down for a minute while I see what I can do," I offered. When I had completed the duplication, I held up the burnt key to the woman. "Would you mind if I kept this one? I'd like to show it to my husband when he returns to the shop."

Her eyes grew wide. "Oh, no! It doesn't belong to me. The car was just borrowed. I'll have to return that key to the owner."

One night during the following week, Don and I were enjoying dinner at one of the local restaurants when an acquaintance of ours entered with his family. He stopped table-side to chat for a moment and the talk turned to business.

"The funniest thing happened last week," he said. "Did a woman bring a melted key into your shop?" I acknowledged she had come into the shop. "I couldn't imagine what was going on that day," he continued. "I'd been trying to sell one of our cars and she took it out for a test drive. She had been gone a long time. I was beginning to get a little concerned when she finally called."

"I just wanted to tell you not to worry," she said. Of course, that made me wonder if there might be something to worry about." He laughed half-heartedly. "She told me she had to take care of something and she would have the car back to me in a little while. Well, what could I say? I told her to

come on back as soon as she could."

"A few minutes later my wife called. Just before she hung up she said, 'By the way Honey, don't let anyone drive that car yet. I don't think our insurance will cover it if anything should happen.' I thought, Oh, great! That's all we need, somebody having an accident in my car with no insurance coverage! Then I really did begin to worry."

"The woman called about an hour later. 'I'll be there in a few minutes,' she said. By this time, I was chewing my fingernails. She had been gone in my uninsured vehicle for almost five hours. My mind went crazy. People could be dead by now, their vehicles crumpled beyond recognition. Their relatives could be already meeting with attorneys to file suits against me."

"Then I got to thinking that I didn't even know this woman. What if she were involved in illegal activities such as drug trafficking. We're only an hour drive from Mexico. By this time, she could have made a drug run across the border in my car. Maybe she was taking too long because she was trying to elude the border patrol. Maybe she had already been caught and they had impounded my car. Five hours is a long time."

He laughed again. "What really happened was so different from what I had envisioned, I wasn't even upset. I was just glad no one had been hurt. When she showed me how the key was melted, I would hardly believe my eyes. That little girl sure was lucky."

I couldn't help but agree. ■

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Hirsch Electronics

"The company has introduced a new line of products based on its well-established and patented Scramble-Pad, a high security electronic keypad."

Hirsch Electronics Corporation introduces the Digi*Trac™ family of Digital Security Command and Control Systems, based on its well established and patented Scramble-Pad®, a high security electronic keypad.

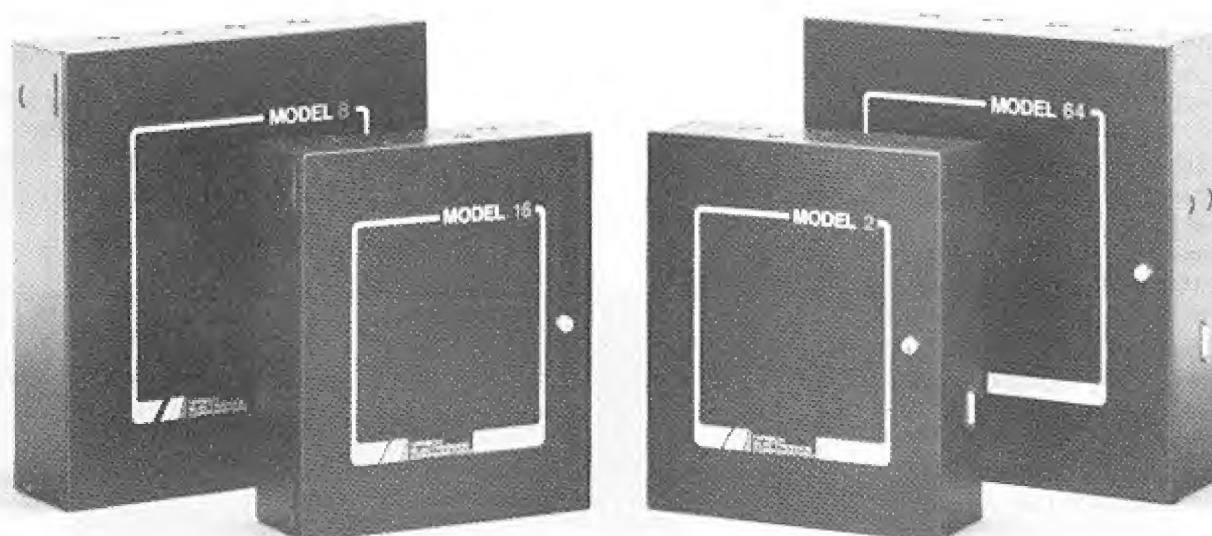
During the past four years, Hirsch has extended its reach into the systems

end of the industry by providing advanced digital access control systems. A strong domestic and international market has been established based on the original Model 2 and Model 8 Systems, by end users not requiring cardbased systems, or by those having a desire to switch from the operational

and costly ownership problems associated with cards.

The users from various industries include a particularly strong contingent of government, military, justice, aerospace, utility, educational, airport and high technology industrial clients.

Based on particularly strong end user input, Hirsch has continued to



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develop and enhance both the M2 and M8 Systems, which forms the basis of the Digi*Trac family. Both systems now offer alarm and relay expansion, along with additional tracking and control commands.

The enhanced M2 and M8 Systems include the new Model 16, marking the first time ever that the unique ScramblePad has been offered on an alarm panel. This is a dramatic development in increasing the security of an alarm system by incorporating the high security, two-percent sensitive, digitally processed analog alarm inputs previously proven on the Model 8.

The M16 also offers 16 inputs, 1000 users codes, printer port, an expansion port for optional boards such as relays, an internal 20,000 event and alarm history log with selective retrieval and printing and networking to Hirsch's ScrambleNet, (System Management Network).

Another enhancement of the M2 and M8 Systems is Model 64. The Model 64 offers 64 on-board control relays for large scale control applications such as elevators, storage lockers and tenant utility controls. It is the only relay control system offering the security of

the ScramblePad. It is similar to the M2, M8 and M16 in its ability to be equipped for networking and other optional expansion boards.

Dramatic international sales for Hirsch through its worldwide network of authorized distribution, initiated the capability to print in multiple foreign languages as a standard feature of each system. Built-in to System memory and instantly switchable are German, Dutch, French, Spanish, Italian and soon to be released Swedish as well as English. This can be a help to multi-national corporations and government agencies.

Simultaneously with the Digi*Trac introduction, Hirsch is introducing Version 6 of its powerful S*NAP2 Software, the DOS PC based software package used to manage Digi*Trac systems over locally wired networks, leased phone lines or dial-up phone lines. Extensive remote site management features are included with this pack.

Hirsch offers S*NAP2 as a software package only, and does not require the purchase of specially equipped PCs from Hirsch. Also included is the capability to communicate over multiple serial channels to other display devices (printers or terminals), or other PCs, or

an owner's host computer, enabling Hirsch to offer the first two packages of its TRAC*PACK Software family.

Alarm*Trac is a flexible, easy-to-use and operate Alarm Management Software Package. It is graphic and text based and can be installed on an auxiliary color PC and monitors traffic coming over a serial port from the S*NAP2 PC. The system responds to alarms by displaying owner programmed graphic screens, maps, floor plans, tabular status panels and additional pages of operator text instructions on the screen. Also included is a full report manager for tracking and printing alarm history reports.

Time*Trac is a time tracking software package that produces reports of how long access code users occupy secure facilities. Daily, weekly or monthly reports are available on individual users, departments or the entire user population. It is owner programmable, except for parameters, and this makes the package customer tailorable for each site.

For more information contact: Hirsch Electronics, Inc. 1751 Langley Ave., Irvine, CA 92714, (714) 250-8888. ■



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Earning Profits With Supra

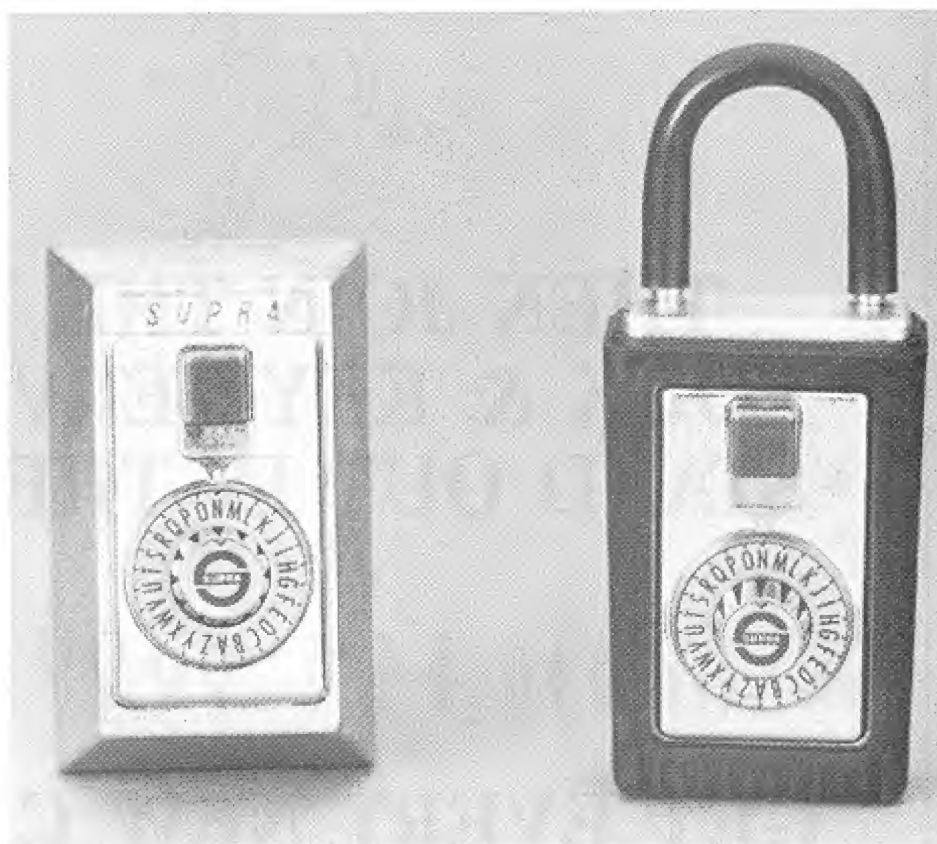
"Take a keybox from Supra products with you on all service calls and demonstrate the use of the product, offering to install it right then and there."

In the locksmith trade, it is becoming more and more crucial to gain extra profit out of every service call you make. When you rescue homeowners from embarrassing lockouts, this gives you instant rapport with them, since you've just given them back their home. Why pass up the perfect opportunity to make additional money while making them customers for life? Take a keybox from Supra Products with you on all service calls and demonstrate the uses of a keybox, offering to install it right then and there.

Supra Products has two combination-products, a wall-mounted or a shackled keybox. The Homeowner Keybox (S5) is a surface mounted box that comes with four mounting screws, while the All Purpose Keybox (C3) has a padlock style mount for easy placement on doorknobs, faucets or fences and comes with the new rubber Door Guard feature which protects doors and door hardware from being scratched.

Both of the keyboxes use a three-letter combination lock with more than 17,000 possible combinations that can be easily changed by your customer. The homeowner can change the combination to update security or remove the lid from the keybox to control access to their spare keys. These spare keys are easily attached to the removable lid of the keybox so they are not easily misplaced.

Supra's Mortise KeyBoxes are designed for institutional and industrial locations, where a masterkey system is in effect. Both the M5 and C3 boxes come less cylinder and are manufactured to accept the standard 1 1/4" or 1 1/8" mortise cylinder locks. The M5 Mortise KeyBox can be mounted on most flat surfaces for easy key access while the C3M can be installed at many access points, such as gates and fenced locations, with the advantage of being relocated, or removed, for limited access



Homeowner and All-Purpose Keybox.

times.

Industrial KeyBoxes are ideal for institutional or business areas such as storage rooms, fenced areas, telephone and utility meter rooms and elevators, that are not part of the masterkey system.

The Industrial Max is able to house a larger number of keys and is ideal for locations with multiple locks not on a master system. Mini-storage yards, kennels, motorpools and locker rooms are places that could use the larger capacity keyboxes.

Supra's lost key service is a 1" x 1 1/2" non-rusting metal tag which attaches to most key rings and the customer's own coded number is permanently stamped onto one side, while Supra's address is stamped onto the front. When lost, the keys can be dropped into any mailbox

and sent to Supra. Supra's "lifetime service" pays for the return postage, locating the owner's address, and sending their keys along to them. The tags are sold in a bright hanging package for display near your key cutting machine.

Keyboxes are examples of what Supra calls the great "add-on" sale potential which is sometimes overlooked in locksmith shops. In most cases, when customers need you for new keys, a change of locks or to gain access to their homes, they are prime leads for extra profit and in the process of providing them these "add-on" products, you've made yourself an additional sale, with more profit.

Keyboxes avoid a lockout re-occurrence and make great sense for vacationing families who allow neigh-



Industrial MAX C3 and M5 mortise keybox.



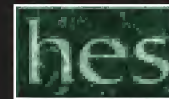
Lost Key Service tag with keys.

bors or friends into their house to take care of pets, plants and mail. A Keybox also means peace-of-mind for working parents, who want to make sure their children can get into the house after school.

Since your professional advice and products will save your customers problems in the future, it will make you a valued friend, someone they will remember for future locksmith services. To guarantee they remember your name, fasten a business card to the back of the keybox when you install it, and they will know right where to look when they need your name again. In the process of making some great public relations points with them, you've boosted your revenue by selling them something they might not have known about or considered.

But more importantly, you've made a life-long friend of your customer, who is sure to return to your shop for all their locksmith needs and in most cases, they will also tell their neighbors and co-workers about your service.

For more information contact: Supra Products, P.O. Box 3167, Salem, OR 97302, (503) 581-9101. ■



S & G's New Scrambler

"This revolutionary new combination lock is designed to automatically reposition the wheels the instant the lock is opened. This adds security."

Sargent & Greenleaf introduces The Scrambler, the only lock specifically designed to reduce theft in high cash storage safes, with a three-wheel combination lock, designed to automatically reposition its wheels the instant the lock is opened. The revolutionary design prevents the common practice of leaving the combination "dialed in," obstructing access to the safe.

The Scrambler is ideal for fast food, retail stores, and all commercial enterprises that often use the combination lock to "day lock" the safe, by insuring positive locking whenever the safe's boltwork is extended. Authorized safe day lock is possible by using an ex-

ternally mounted rim lock and "dial ins" are locked out, providing security that significantly reduces internal and external theft.

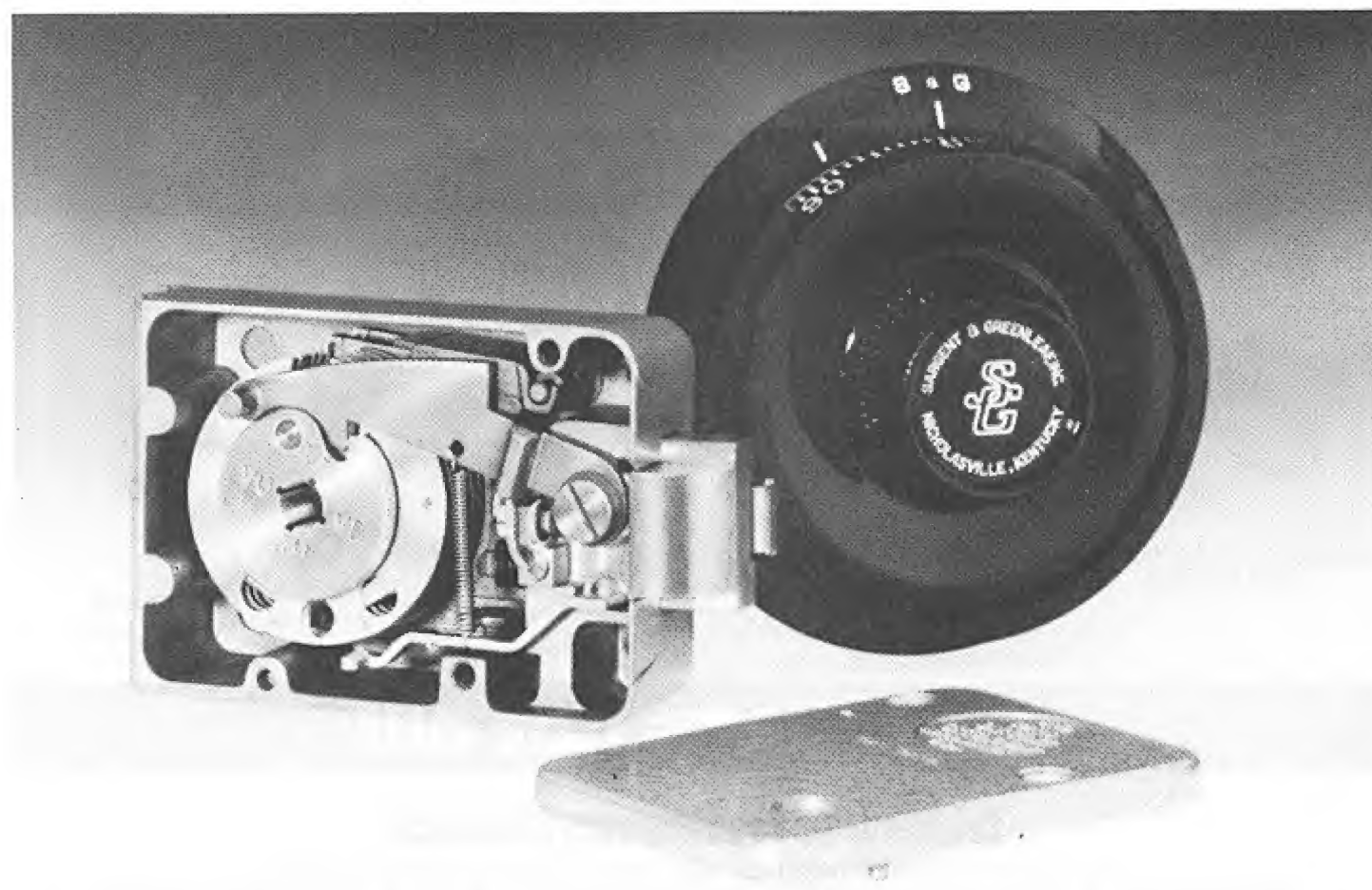
The mechanical, three-wheel combination lock features a uniquely engineered spring-loaded "hook-like" mechanism that interacts with the single-piece, brass-forged lever to scramble the wheel gates away from the lever fence the instant the bolt is retracted.

The Scrambler is available in 6750-NTA-SB featuring a radiused spring bolt/deadbolt that allows the lock bolt to serve as the direct locking bolt for a safe door and the 6750-NTA-DB equipped with a deadbolt to act as a

block for safe cam plates and boltwork. Both configurations are equipped with an internal relock trigger and breakaway cover for extra security against forced entry attack.

Whether specifying for a new safe installation or retrofitting an existing safe, The Scrambler is easy to install because it is designed to mount the same way as standard combination locks. Also, The Scrambler meets all the crucial dimensions of the "Magic Module" and the footprint is approximately the same.

For more information contact: Sargent & Greenleaf, One South Drive, Nicholasville, KY 40356, (606) 885-9411. ■



Sargent & Greenleaf's Scrambler Lock

High Tech's Model 1800

'In a good encyclopedia, the material should be logically organized and easily understood. Time is of the essence when on lockout calls.'

When called upon to service a new car, there are several problems a locksmith must be aware of. First, lock linkage style and position might not remain consistent from one model year to the next. Even if they are identical, locksmiths might not be the first to know, and this information is necessary to complete a lockout. Next, the actual lock part numbers, code location, depth, spacing and key blank numbers might not have been updated yet in most publications. This is the case with half-model years and early releases.

When a locksmith is faced not only with a new vehicle but a brand new model it may not be easy to look professional. If the locksmith is equipped with the right information, these concerns are greatly minimized. For the purpose of this article, we will be

using the High Tech Model 1800 System of Tools and Encyclopedia, which are updated every model year and provide supplements to registered customers in the case of half-model years and early releases. An example of this is the 1991 Chevrolet Caprice Classic. Even though this is a new vehicle, the lock mechanism is not difficult to deal with.

In a good encyclopedia, the material should be logically organized and easily understood. Time is of the essence on lockout calls and you don't want to waste any time trying to understand complex instructions. In the High Tech Encyclopedia you first read the instructions and look at the diagram (*see illustration 1*) and/or picture of the lock mechanism. (*See illustration 2*.) After carefully separating the weather stripping from the window, insert the hooked black tool with the tip towards the front of the car. Lowering the tool into the door, rest it on top of the bottom linkage with the tip of the tool. The door lock lever will move when you contact the correct rod. Gently but firmly you turn the tool to pop open the lock.

This may seem too simple to be true, but that's the importance of having good research material at your fingertips. You can keep your calls down to 15 minutes instead of two hours, and be back at the shop waiting for another call. Your customer will remember this and recommend you to others.

To use the encyclopedia correctly, reference what kinds of locks are used in the car. (*See illustration 3*.) If you have those particular locks on hand, it might be a good idea to bring them just in case. Consider this scenario:

You get the service call for the 1991 Caprice Classic and you research what parts you might need. You load them in the van and get to the site. Sure enough, the owner tells you that the police have already tried to open the car and have damaged the door lock. This poses no problem for you because thanks to

your reading you have already brought along the right parts. You follow the instructions in the Encyclopedia and you have the lock replaced in no time. Once again you look professional and the consumer is impressed.

What happens if this previous call was from a customer who says that he's lost the keys to his uncle's car. This young man doesn't know the year of the car and is unsure of the model type. With a proper reference book, all you need to do is ask him to read the VIN# in the corner of the windshield on the driver's side. With this information, you are able to determine the auto's year and model. (*See illustration 3*.) Even more important you see that the vehicle is equipped with an air bag. This information is vital since you will be replacing the ignition lock cylinder.

You will have made your job a lot easier if you take the time to learn about air bags first hand. There are several sources for obtaining air bag information and the High Tech encyclopedia has a section on that topic including an instructional video with the Model 1800 Set. Once again, the step-by-step instructions make the job easy and profitable. You even know how much to charge since the encyclopedia gives you suggestions for a flat rate and time needed to do certain jobs that often come up. (*See Replacement Time Guide, illustration 3*.)

Easily accessed information (such as a complete key blank listing and cross reference and space/depth charts (*see illustration 4*) for unknown or newer vehicles plays a major role in maintaining a gap between the novice and the professional. Taking advantage of this information will not only make you a successful locksmith but a prosperous businessman as well.

For more information contact: High Tech Tools, 1400 SW 1st St., Miami, FL 33135, (800) 323-8324.

See illustrations on the following pages. ■



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GM

Chevrolet Caprice Classic

INSTRUCTIONS:

Opening Instructions

Tool : HOOKED BLACK TOOL (#1821BA)

1. Separate glass from weather-stripping with a wedge.
2. Point tip of tool towards rear of car.
3. Lower the tool into car. Rest the tool on the bottom linkage (SEE FIG. FOR POSITION).
4. Turn tool so tip moves toward front of car pushing the lock linkage forward.
5. Watch door lock lever inside of car for movement. When you have contacted the correct linkage, you will see the lever move.

DIAGRAM:

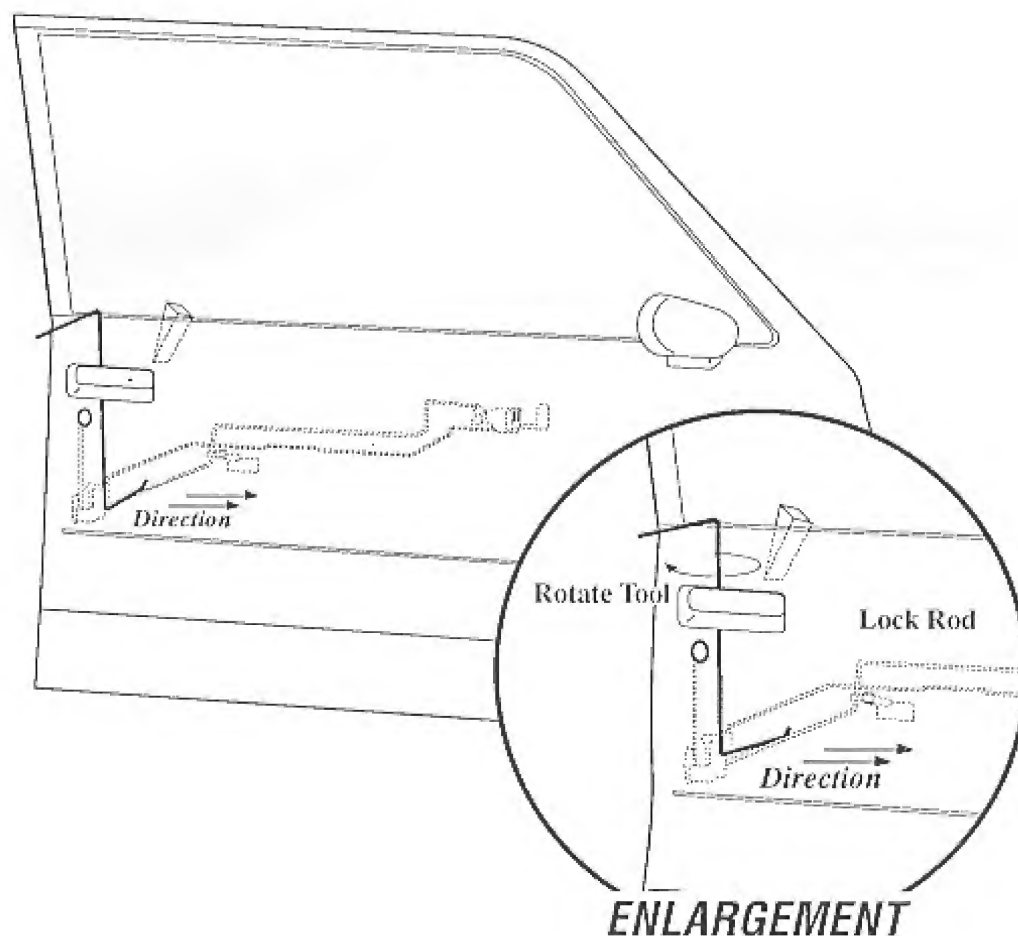


Illustration 1

Photo Page

Chevrolet Caprice Classic

GM

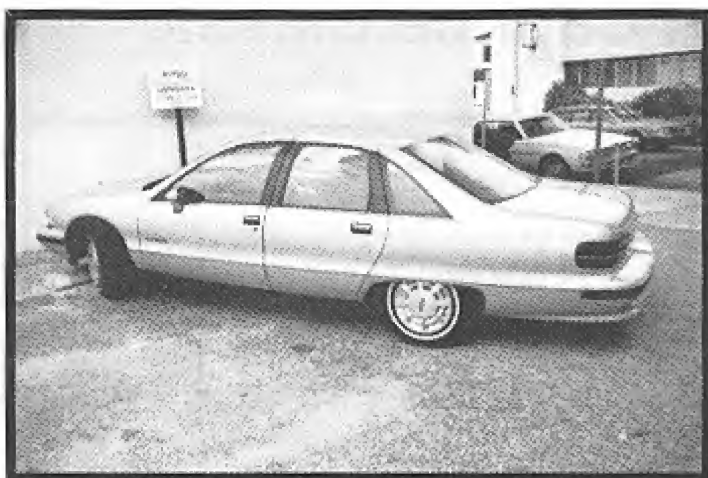


Photo 1
Chevrolet Caprice Classic

Photo 2
Door with panel off.

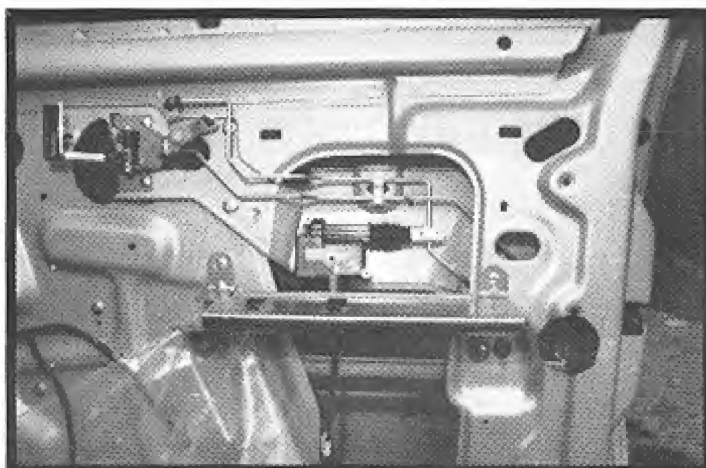
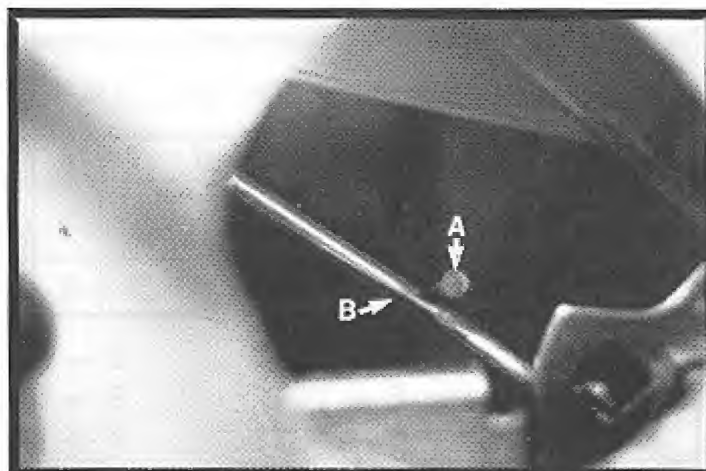


Photo 3
Tool in working position.



Photo 4
A - Tool
B - Linkage



GM

Chevrolet Caprice Classic

Fact Sheet

Make/Model

Chevrolet Caprice Classic

Years / Body Style

1991 4 Door Sedan

Part Replacement Time Guide

Ignition Lock 1991	1.8
Front Door 1991	0.9
Trunk Lid Lock 1991	0.4
GloveLock 1991	0.5

Opening Tool

Hooked
Black
Tool

Tool# 1821BA

Lock Part Numbers

	Ignition Lock	Door Lock	Trunk Lock	Glove Lock
Briggs & Stratton	609530	608170	605533	
Original	784414	1230122	12330124	12390303

BRIGGS & STRATTON, AUTO SECURITY PARTS AND ALL-LOCK ARE AVAILABLE FROM HIGH TECH TOOLS.

Lock Rotation

IGNITION	RIGHT DOOR	LEFT DOOR	GLOVE BOX	TRUNK
 CLOCKWISE	 CLOCKWISE	 COUNTER CLOCKWISE	 CLOCKWISE	 COUNTER CLOCKWISE

Key Code Location

Primary — The code for the primary key all times be found on the ignition lock.

V.I.N. Diagram

Note: See V.I.N. Definition Section for complete descriptions.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
									Model Year							
1	G	6	V	R	1	1	6	X	*	5	1	0	0	0	0	1

Model	A — 1980	D — 1983	G — 1986	K — 1989
Year:	B — 1981	E — 1984	H — 1987	L — 1990
	C — 1982	F — 1985	J — 1988	M — 1991

Chevrolet Caprice Classic

GM

Fact Sheet

Key Blanks

<i>Key Blank # (Ilco EZ #)</i>	Ignition B50	Door B51	Trunk B51
<i>Key Blank Cross Reference</i>	Original 320652 320653	Ilco B50 B51	Silca GM2R GM4

ILCO, SILCA AND BRIGGS & STRATON KEY BLANKS ARE AVAILABLE FROM HIGH TECH TOOLS.

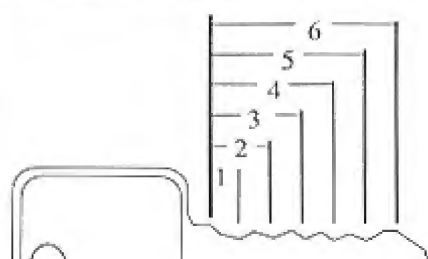
1200GM Card

25

HPC Code Cutter

CW-1011

Key Depth & Spacing



Spacing of Cuts from Bow

(SEE KEY DIAGRAM ON LEFT)

1 - .109	4 - .385
2 - .201	5 - .477
3 - .293	6 - .569

Depth Chart

0 -	3 - 0.198	6 -	9 -
1 - 0.248	4 - 0.173	7 -	10 -
2 - 0.223	5 - 0.148	8 -	11 -

Stop to Center 1st Cut: .109
Cut to Cut Distance: .095
Shallowest Cut is a #1

Deepest Cut is a #5
Depth for shallow Cut: .248
Drop Between Cuts: .025

NOTES

key.

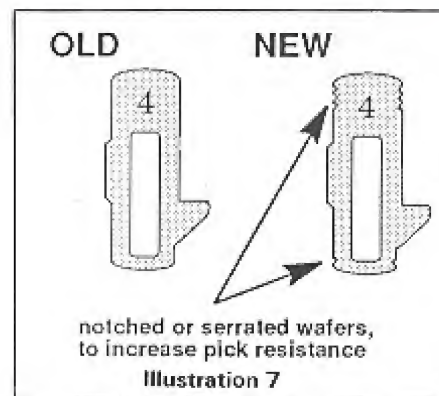
The new key was originated on the HPC 1200 machine by using code card X-59. The plug was combined using the wafers provided by the Briggs & Stratton lock service kit part number 701416. The plug fit well in the lock shell. Once in the shell, it jammed tight. I knew I had assembled it correctly and that I had used the correct depth and space information in making the key. The wafers were just somehow wrong.

Pulling out on the key slightly, I was able to "pick" the plug and disassemble the cylinder. A close inspection of the plug, (see photograph 6) revealed the

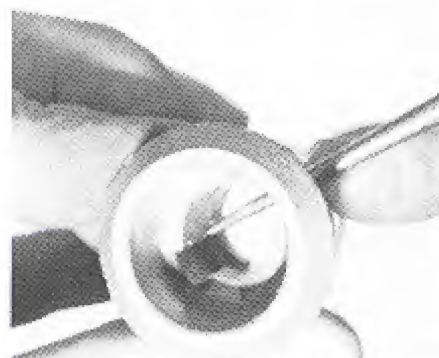
key cuts were cut too deep. This allowed the wafers to extend slightly from the plug. The one cuts in the key are actually "no cut," so the key can't be too small. The wafers were B&S "original" wafers.

I dug the old wafers out of the brass box and began to examine them more closely. Illustration seven shows the difference in the 1989 Chrysler locks to the 1990 locks. The notched or serrated sides of the wafers are a vast improvement in the security of the locks.

A closer inspection of the wafer compartment of the lock case revealed that a ridge along the sides of the



compartment will engage the serrations in the wafers if an attempt is made to pick the cylinder. This prevents the wafers from dropping and allowing the plug to be picked. (See photograph 8.) If you think these locks are easy to pick or impression, better think again.

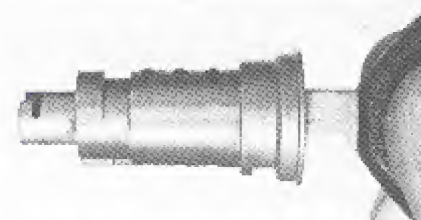


8. When a picking attempt is made, the serrations are engaged.

The wafers in my kit were wrong for this car and I didn't have the new wafers in stock. I later found out that an updated kit must be purchased for the new Chrysler automobiles. Order B&S part number 701416 for the new wafers. Included in the kit are new style face caps, needed for the door cylinders, and an assortment of lock pawls. I try to keep up with this new information, but I did miss this one.

The old key was decoded and the cuts rearranged so the old key would not operate any of the locks. This allowed me to continue with the rekey until the new parts could be ordered.

In the properly combined cylinder shown in photograph nine, you will see that the wafers are perfectly aligned in



9. A Properly combined cylinder.



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the plug. The old style wafers cannot be modified to work in the new locks without seriously diminishing the security of the cylinders.

With the plug properly combined, a light coat of petroleum grease is applied to the outside of the plug before the lock is assembled. (See photograph 10.) I prefer the petroleum based grease over the white lithium (soap) based greases because they will not dry out and give better protection against corrosion. Winter salt is a serious problem with white-metal locks in the Midwest.



10. A coat of petroleum grease applied to the combined plug.



11. The plastic trim piece is held in place by four metal clips.

The door panel must be removed to allow the handle/lock unit to be removed. The plastic trim piece in photograph 11 is held in place by four metal clips. Pay special attention to the clip at the rear of the panel by using a wide blade screwdriver to pop it out from the front of the panel. I had a problem getting it to release. It might break the panel if you are not careful in doing this.

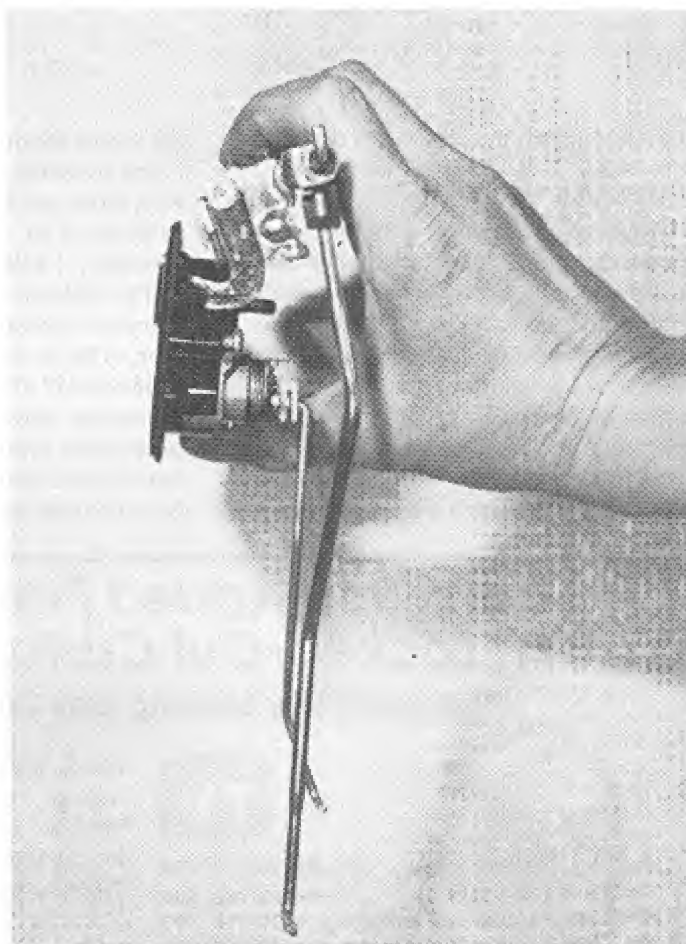
Carefully remove the clear plastic courtesy light bezel under the arm rest, to reveal a screw that secures the handle portion of the panel to the door. There are five screws that hold the trim panel to the door with two more concealed in

the carpet across the bottom of the door. These should not be removed from the panel since they have a special large head that makes them "captive" behind the carpet. To remove the screws, you would have to lift the carpet off the panel then glue it back on, leaving only the screws in the panel.

The unit handle assembly is held in the door by two 10mm nuts that secure a "bridge" over the back of the lock handle assembly. You will need a deep socket or a hollow shaft nut driver to remove these nuts and disconnect the lock linkage and the handle release

phillips head screws to secure the lock cylinder in the handle. The wire clip, that we found securing the lock cylinders in the 1989 models, must not have worked out. Remove the two phillips screws, paying close attention to the orientation of the lock pawl and cylinder body, and remove the cylinder from the assembly. Similar to the trunk lock, we find a large drain hole in the cylinder that reveals the first five wafers (cuts) of the key. (See photograph 14.)

The caps of the new cylinders should not be destroyed or removed, unlike the 1990 cylinders. The new style caps can

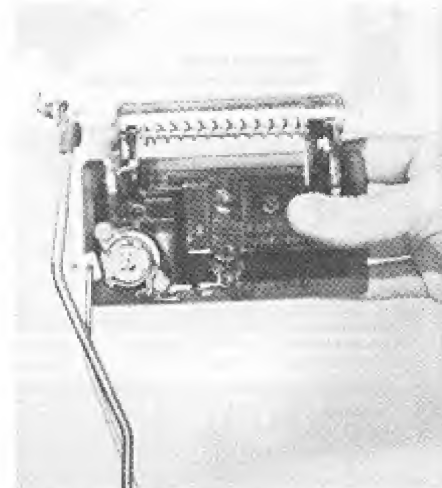


12. The unit handle assembly.

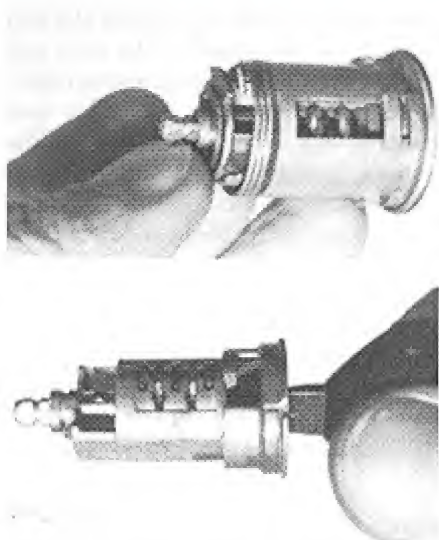
linkage at the latchbox, not at the handle. Pivot the lock linkage up so the lock pawl will clear the edge of the handle and simply slide the whole assembly out of the door. There should be no need to pry, wrestle or bend it around if you fold the linkage properly. Let the handle release rod hang down as you lift it out of the door.

Photograph 12 shows what the unit handle assembly should look like now. The lower ends of the linkage rods are the only easy end to disconnect and reconnect.

In photograph 13, the back side of the handle assembly is shown. You will see that the new assembly uses two

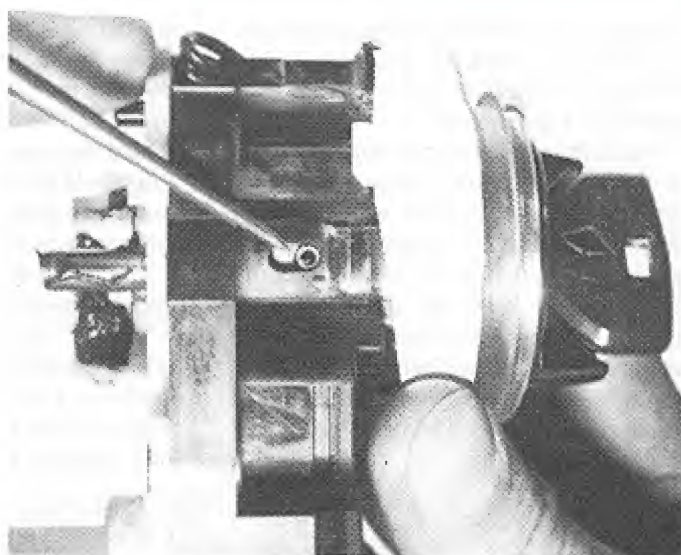


13. The back side of the handle assembly.



14. A large drain reveals the first five wafers of the keys.

15. The plug can be easily removed for service.



16. The roll pin which releases the ignition from the column.

be substituted, but it is much easier to use B&S P.N. #321847 chrome (or #321848 for black) caps.

Remove the "E clip" lock pawl and centering spring. After the cap has been removed, the plug can then be easily removed for service. (See photograph 15.)

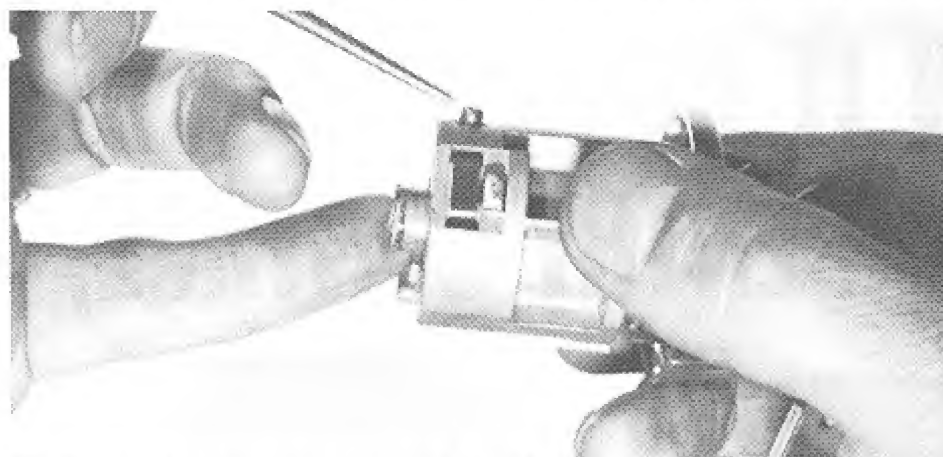
Assemble the cylinder and the handle assembly into the door and test the lock and latch handle for proper installation before you close the door. Watch for interference between the lock pawl and the bridge leg. The bridge that retains

the lock in the door can then be difficult to get properly placed. It only fits one way, so do not force it, just keep trying to make it fit. When it is positioned correctly, it will slip right in.

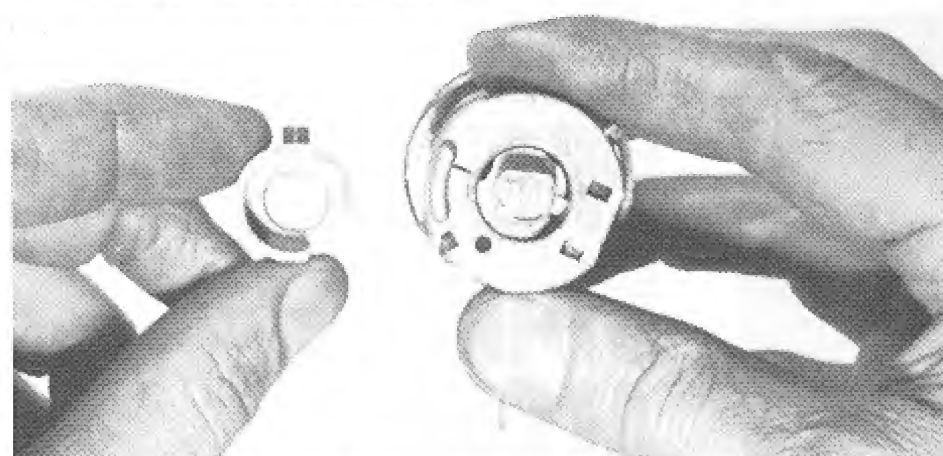
The ignition of the 1990 tilt column Chrysler products is the large format type. This is similar to the All-Lock 1446 or 1447 of the recent past. The big difference here is in the cam on the back of the cylinder. Some of the locks have a removable pin to release the cam from the plug and allow the cylinder to

be disassembled. Other cylinders are riveted in place with no provision for disassembly. Guess which type of ignition I have?

The roll pin which releases the ignition from the column is shown in photograph 16. You don't need to remove the steering column or the air bag to remove the ignition. Just turn the key to the on position while pushing in the roll pin, then the ignition lock will slide out a little. Turn the ignition lock back to the off position and remove the key. The



17. The cylinder retainer pin is on top of the cylinder.



18. Carefully remove the cam with a small screwdriver.

key alarm actuator will be sucked into the cylinder and the lock will slide right out.

When installing the ignition back into the column, turn the lock to the start position. This extends the roll pin again. The cylinder retainer pin is on top of the cylinder and the metal key alarm actuator is slightly below and to the right of the pin. (See photograph 17.) Notice that the cam has already been removed from the cylinder and staked into place. Gentle coaxing with a small screwdriver will remove the cam and if you are careful, it will come off without damaging the cylinder or cam. (See photograph 18.)

After rekeying the ignition lock, it was reassembled and the shaft "peened" back into the cam to form a tight and secure riveted joint. Although this type of repair is possible when short of time, I recommend that B&S P.N. #701247 service package becomes a part of your running inventory. The service package contains a complete lock, uncombined and ready to assemble.

Replace the ignition lock in the housing and turn the cylinder to the start position to extend the retaining pin. This is a manual mode lock instead of a spring-loaded retaining pin. ■

Voodoo Collection Methods

"When all threats and pleading fail I use my Doomsday technique. I borrow one of my daughter's dolls and a pin cushion. With voodoo, I get paid one way or another."



by Joseph Locke

I have found from talking with other locksmiths and from my own experience, that the most discouraging part of our business is unpaid invoices. There seems to be a large part of the population without ruth or conscience. Many times I have gone to super-human lengths to satisfy a customer, up to and including fabricating a unique device to secure his home or business.

At the end of all that devotion to duty and craftsmanship, I sometimes end up with a signature on an invoice as my only compensation. The laws of the land seem to favor the deadbeat, giving him all sorts of time and loopholes to avoid paying debts. I have known several locksmiths who have left our profession mainly because of the ungrateful and deceitful treatment that some customers have put them through.

One of my biggest faults is that I refuse to accept defeat. That one trait has gotten me into an awful lot of trouble over the years. For example, my wife said no the first time I proposed. But would I listen? Collecting money, however is one of the exceptions to that postulate. I take it very personally when someone doesn't pay me. I have gone through the standard procedures, such as certified letters, small claims court and the like, but have found that most deadbeats have had a lot of experience and know how to beat the system.

They know that time is on their side, and that if they hold long enough, chances are they will escape paying the piper. With a little bit of determination and imagination, these crooks can be beaten at their own game. Some companies just eat these losses and pass the cost onto their paying customers, or they develop a dour attitude toward

their business.

I have developed a system that keeps me from becoming a sour puss, and I still have a good attitude toward our profession. I treat collecting money as a game. I do not get emotionally involved with it. Feeling sorry for myself and knowing I was treated unfairly never put any money in my pocket.

There are certain tricks I have developed through trial and error that have worked very well, but I would caution you not to try these yourself, without first consulting your psychiatrist.

A fellow called me out to open a safe. He owned an insurance business and was fairly wealthy, and had bought a special type of night deposit safe that was a factory reject. The combination worked and the bolt handle would move, but the door would not open. My first clue was that the door had no play at all, so I got out my trusty prybar and forced the door open. The safe had obviously been closed before the paint had cured completely, and was sort of glued shut.

This guy was mad at me because I insisted on being paid for knowing what to do. He signed an invoice, but somehow I knew that my check would not arrive. After the obligatory 30 days, I started getting the run-around...check is made out but not signed, computer sent it to the wrong address, etc. I didn't like the guy, so I decided to use him as a guinea pig for an experiment.

I started calling his office every day at exactly 10 a.m. asking when I was going to get my money. After a couple of weeks of this torture, I waited until 10:05 to call. The next day I waited until 10:10 and the day after 10:15. I skipped a couple of days to give him some false hope and then started calling at 10 sharp. I was always courteous and friendly, and acted as though I believed all the excuses. I then promised to call again if I didn't receive a check in the mail. It took about a month, and I was almost sorry to finally get the check,

because I was having so much fun bugging the guy every day. (He must have run out of excuses.)

One time a multi-million dollar company had me do a bunch of work that required a large investment in inventory. I tried to get a check right away so I could pay my supplier, but the "executive" that I was dealing with let me know who was important in the scheme of things, and I didn't even get an honorable mention. "We'll send you a check...We never pay COD...We are a multi-million dollar company...etc.

Three months later and I was still not very important. I had nothing to lose, so I went to their office and asked to see the bookkeeper. "He's in a meeting," the receptionist lied. I said, "I have nothing else to do for a few days, so I'll wait until he's done with the meeting." I sat on the couch and stared at her until she finally got up and went to the desk that the bookkeeper was hiding behind and said, "I can't take it anymore...You go out there and let him stare at you!"

I got my check and you might think my method extreme, but I couldn't afford to lose that much money. A month later I read that this "multi-million dollar company" was bankrupt. The executive that was so superior to me went to jail for embezzling company funds.

Sometimes we are faced with the situation of a non-commercial customer who refuses to pay for services, as in the case of a car opening. When all threats and pleading fail, I use my doomsday technique. I borrow (after much hysteresis) one of my daughter's dolls (in this case a Ken doll). I also borrow one of my wife's pin cushions. I show these to the "so called" customer and then say "With voodoo I get paid one way or another. The next time you feel a sharp pain, remember the day you cheated me."

You may never get paid, but that person will remember you every time he hurts somewhere. Did I mention that you should have a wild gleam in your eye when you say "voodoo?" ■

American Lock & Supply Show

Taking advantage of extraordinary specials and several new product line exhibits, American Lock & Supply's customers made the 90's edition of its annual trade show a one million dollar event.

"With the addition of three new branches and our growing customer bases," says AmLok Promotion Manager Tom Bokarae, "our goal to reach one million dollars in sales for the one-day event was not totally unrealistic." The million dollar total represented a 25% increase over the

1989 show, which had a 45% increase over 1988.

AmLok management acknowledges that a major factor in success in the year's show was the location itself—the Disneyland Hotel in Anaheim, CA. Bokarae reports that the booth count rose from 13 to 106 and the rooms booked at the host hotel soared from 165 (last year at the LA Airport Hilton) to nearly 400 at the Disneyland Hotel grounds.

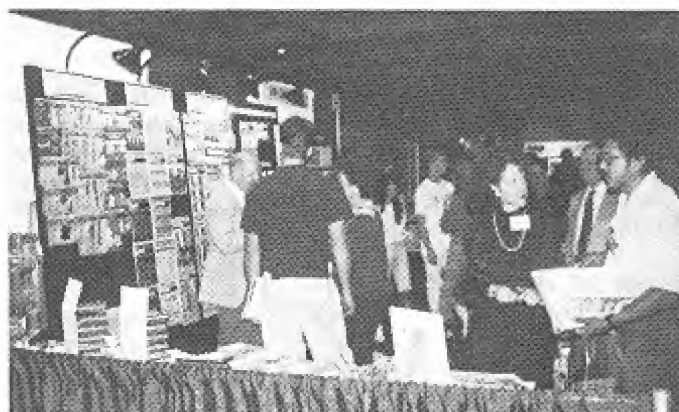
Again this year, the 3,500 attendees could choose among a variety of

seminars including business management, computerization, product and financial planning topics. Clinics presented on air bags and V.A.T.S. were the most sought after, having standing room only crowds of 300 attendees.

Next year's American Security Show '91 returns to the Disneyland Hotel on March 16 and 17. For more information contact: American Lock & Supply, 4411 E. LaPalma Ave., Anaheim, CA 92807, (714) 996-8882. ■



Trade show time is good time for one on one sessions with top AmLok management as an attendee discusses business with Vice President of Sales, Bill Powers.

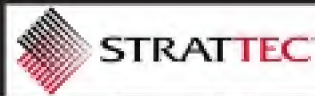


The Lucky Line booth staffed here by Ray and Jan Howard, is consistently one of the busiest.



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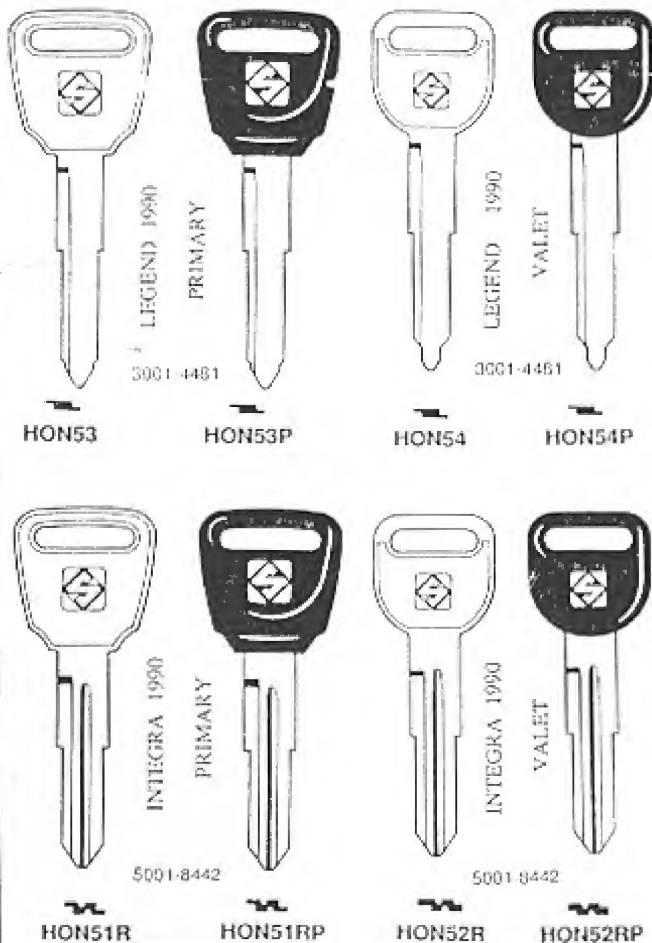
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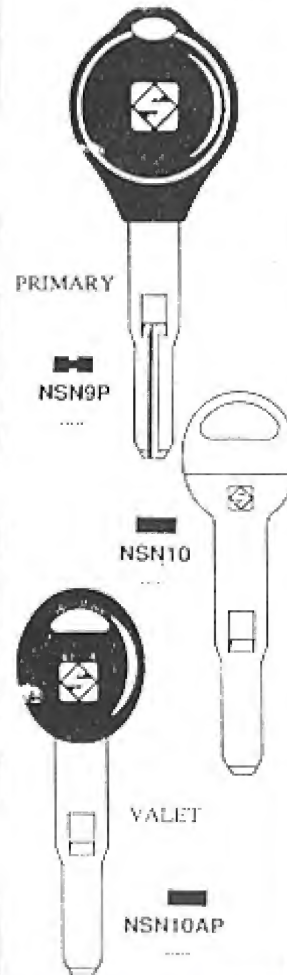
Keyblank Corner

New From Silca

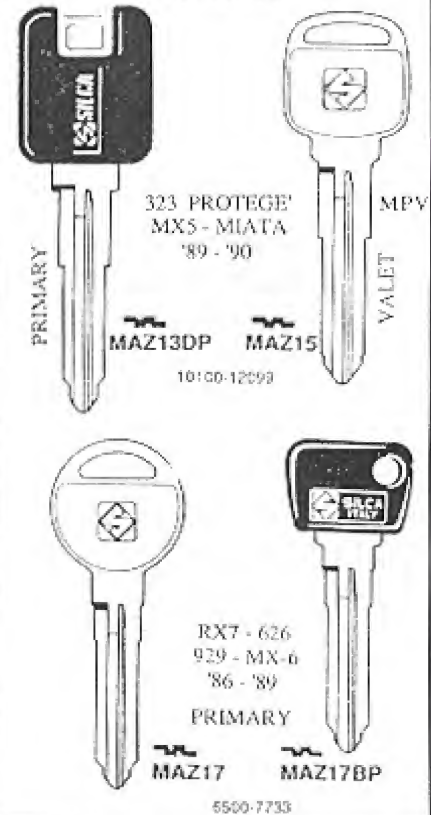
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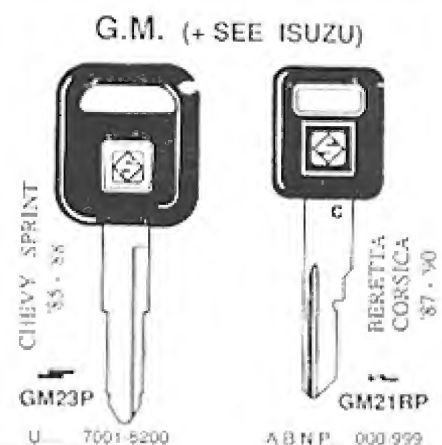
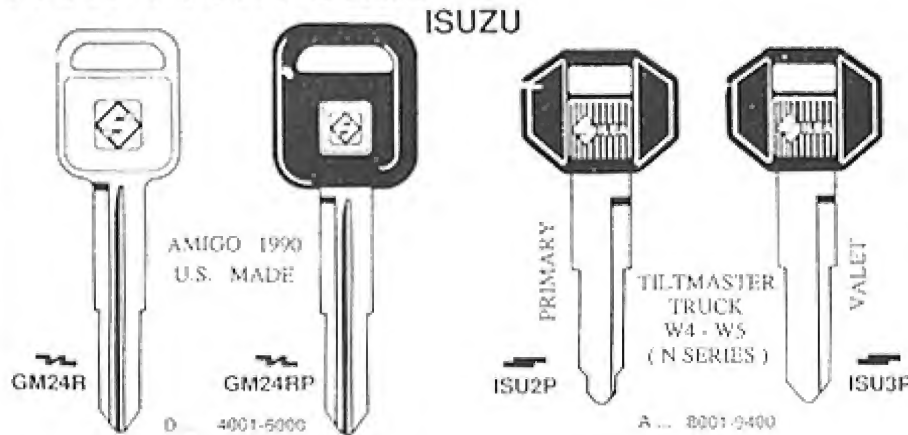


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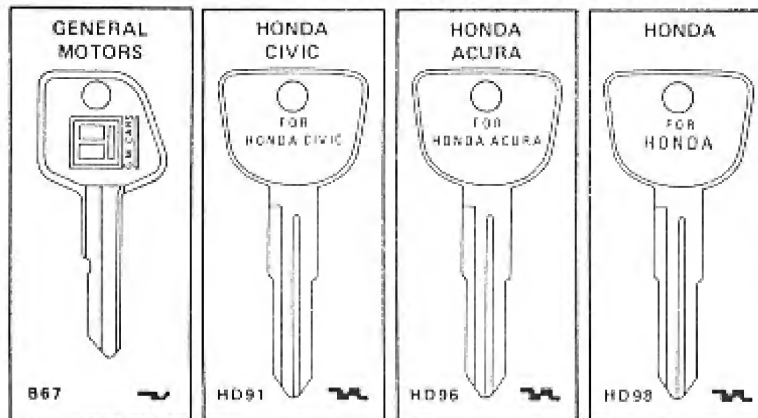
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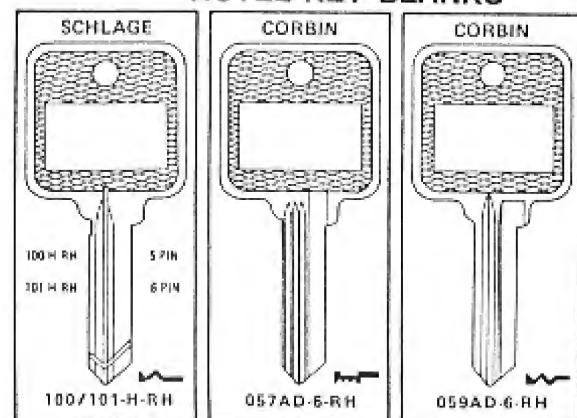


New From Jet

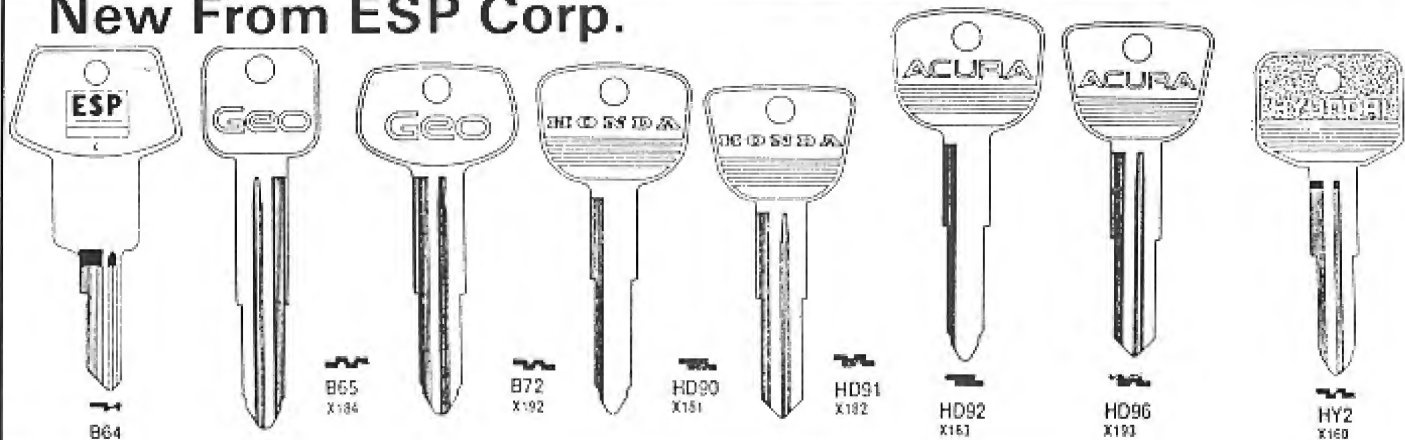
AUTOMOTIVE KEY BLANKS



HOTEL KEY BLANKS



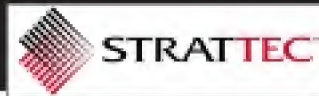
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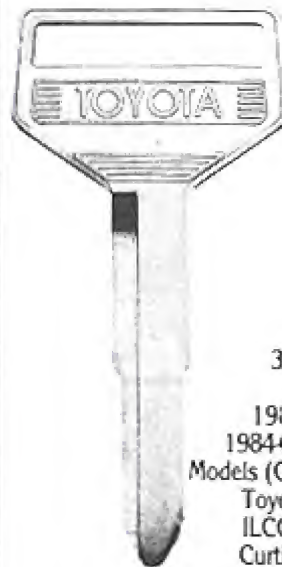
NATIONAL

AUTO LOCK SERVICE, INC.

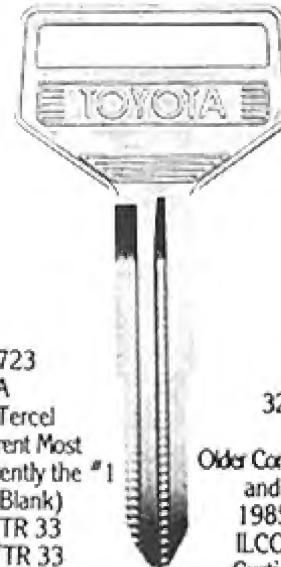
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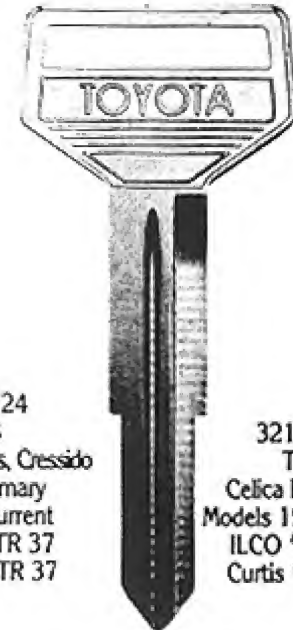
BRIGGS & STRATTON TECHNOLOGIES



321723
TA
1983 Tercel
1984-Current Most
Models (Currently the #1
Toyota Blank)
ILCO #TR 33
Curtis #TR 33



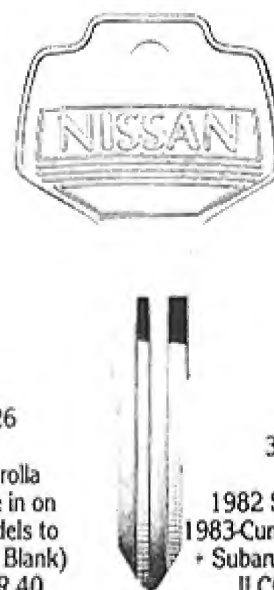
321724
TB
Older Corollas, Cressida
and Camary
1985-Current
ILCO #TR 37
Curtis #TR 37



321725
TC
Celica Liftback
Models 1986-1988
ILCO #TR 39
Curtis #TR 39



321726
TD
1988 Corolla
(Will phase in on
Future Models to
become #1 Blank)
ILCO #TR 40
Curtis #TR 40



321727
NA
1982 Some Models
1983-Current (All Models)
+ Subaru 1985-Current
ILCO #DA 25
Curtis #DA 27



321728
HA
1982-1983
Civic & Prelude only
ILCO #HD 82
Curtis #HD 80



321833
HD
1982-1983 Accord
1984-1987 (All models)
Also works in
Acura and Integra
OEM #35111-
SA5-922AH
ILCO #HD 90



321834
HE
1988 Civic
OEM #35113-
SH3-003AH
ILCO #HD 91

Shop Talk

Helpful Questions and Answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers. Send your locksmith questions to Shop Talk: The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

Q: I had a customer about 25 miles away. She wanted her locks rekeyed and deadbolts installed. She also wanted her front door changed to a lever lock because that was the door she thought she would use most often. She had arthritis in her hand. The locks were all a popular brand, and like everyone, she wanted the best security possible at the least expenditure.

I rekeyed three existing knobsets, installed an entrance leverset, three standard duty double cylinders and one single cylinder deadbolts, a lever handle on her garage entrance, and two new garage door handles. She wasn't really thrilled at the cost. But she was happy with what was done and she paid me.

Eight months passed and I received a call that her leverset wasn't working. Could I come out and find out why and fix it? I went there and found the problem was internal. The locking slide had broken and the spring was mangled. I told her the lock was under a 10 year warranty and that I would get back to

her. I couldn't leave her without a lock in the door, so I took a knobset, rekeyed and installed it in her door, telling her I'd call her.

I thought, I'll call the manufacturer, get the parts sent to me, repair the lock and reinstall it. I called my distributor. The lock was out of stock. I called the manufacturer. Unfortunately, they didn't understand the parts I needed and wanted me to send the lock back. I thought this would be a waste of time and asked for an exploded view to be sent. I would call back with the part numbers I needed. They said it would be mailed to me.

A week passed, no response. I called back. A month later, I finally received the exploded view. I had gotten back to the customer and told her the situation. By this time I figured I couldn't get the parts. She decided to wait until I got a new one from the distributor.

Two months passed and the distributor finally got a shipment in. It seemed that they had a large return on that lockset and that's what had held up shipment.

I no longer felt this should be a no charge situation and told the customer that there would be a charge for coming back and installing it. She thought that "stunk." I shouldn't charge her for putting the lock in; it was under warranty. I said the lock is under warranty, the labor was only warranted for 30 days. She said her husband

would put it back in and they would send me my lock back, just give the lock back. I gave her back the lock and went on my way.

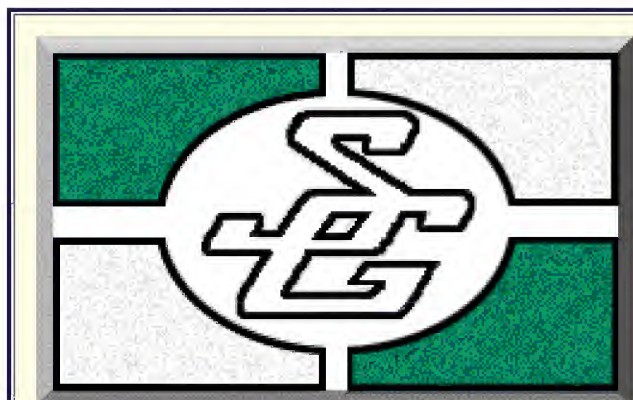
Now my question is, was I wrong in what I did? Several people I've talked to say I was not wrong. I'm not sure and would like another opinion. Should I have been paid for the labor or not?

*Edward Herman
Illinois*

A: Customer relations can sometimes be very tricky as you now have learned. I would say that you did make at least one mistake in dealing with your customer. The biggest error you committed was changing your policy in mid-stream. First you told her that the lock was under warranty and that you would repair and reinstall it at no charge. But later you told her that you would charge her for labor. That's where you made your mistake.

I understand what made you change your mind. You put a lot of time and effort into tracking down the parts and by this time you figured you should be paid for your time. I do agree with this point of view. You should be paid for going out there, a 50 mile round trip, to replace the broken parts.

However, when she originally called you, you should have told her right then that the lock was under warranty for parts only, and that there would be a charge for the labor. After all, eight



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months is a long time. You would have had no problem. But first you told her no charge, then later you told her you'd charge her. If someone did that to you, you also would think that it "stunk."

The lockset you sold her does carry a 10 year warranty on "defects in materials and workmanship." However, the warranty does not cover breakage caused by owner abuse or "ordinary wear and tear." The company would have wanted to examine the lock to determine the cause of failure.

I believe you handled most of this problem well. You only made that one mistake. But that was probably enough to guarantee that you won't ever get any more work from that customer.

And that's a shame, because they might have given you all their work in the years to come. Chalk this up to

"tuition paid" at the College of Experience. Next time, state your policy right up front. Your policy of only 30 days warranty on labor is fair. You might even want to have it printed on your invoice forms.

Q: I am a beginner to safe work and I have come across a strange combination lock. (See photograph 1.) I need an explanation of how it works. The only marking on the dial knob is Yale. Either of the following two combinations works:

Right 3 times to 74; Left 2 times to 96; Right to 54 and open. Or Left 3 times to 66; Right 2 times to 0; Left to 54 and open.

*Frank's Fix-It Locksmith
Illinois*



1. Safe with no workable combinations, closed.

A: What you appear to have is an old Carey safe with a direct drive type lock, similar to Sentry Type locks of today. The reason that there is a different combination is that this lock uses fixed pins or screws on the wheels (tumblers) as opposed to the newer more modern "Movable Fly" type wheel pick up arrangement.

By starting to the left, and adding the thickness of the wheel screws, which can be calculated as four numbers each, the first number to the left is eight numbers different that when starting to the right. The second wheel is only four numbers different. The drive wheel is the *same* no matter which direction the combination is turned, because it is attached directly to the dial spindle, and this number, for all intents and purposes will never change. This is normal.

I would suggest that you take some safe combination servicing courses, either at home or at a locksmith convention. Education is the secret to success in the safe business. 07

Letters

Continued from page 10

problem. I suggest however that the publishing of "How To" articles, and pictures of safes showing where to drill are a disservice to the safe user and violate his/her security. Safe builders need the support and help of the safe technician in providing the best possible security for the people and companies that rely on our products and services.

As of this writing, I want to go on record as stating that the McGunn Safe Company feels it is a violation of security to publish photos or discuss opening points in your publication on any of our products. We will also inform our customers of our opinion, and suggest that if they ever suffer a burglary and the methods employed are similar to



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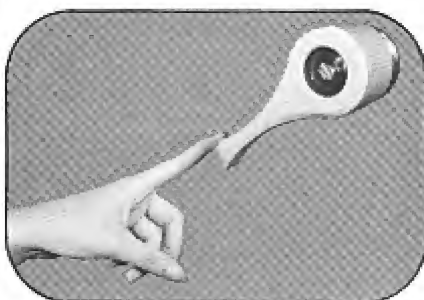
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those discussed in your magazine, there may be a question of legal liability on the part of your publication.

Edward McGunn
McGunn Safe Company
Chicago

Editor's Note: In today's world, education is the key to success for a locksmith. McGunn Safe offers a fine product line. But somewhere, somehow, a customer will lose his combination. At this time, your customer will want his safe opened quickly, professionally and with minimum damage.

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Circle 445 on Rapid Reply

Car Opening

Continued from page 40

On the Hondas made in the last couple of years that don't have the code located on the yolk, you will have a different approach. Our approach begins when we unlock the car, which incidentally functions similar to the earlier ones. The exception being the little sporty CRX. After the car is opened, go for the trunk lock. The release is on the floor next to the driver's seat, but it is impossible to find this release locked.

If you find it locked, you can either pick the lock or remove the molding next to the lock. Then pull on the cable directly behind the lock activating the release. Unless there's something ob-

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structing the procedure, it is much easier than pulling a door panel.

Remove the lock from the trunk and make a key. There may be a large window on the side of the housing which exposes the wafers. Insert a blank, survey the wafers, and start cutting in the wafer depths until the wafers are all even and the plug will rotate.

If you remove the glove compartment lock on the newer models, you will find a long number. The number could be comparable to that number we've been finding on the yolk on this ignition. The last four digits of this number will constitute the code. To remove this lock, remove the two screws holding it in from the backside.

There is one very important thing that you should keep in mind. Since these cars require the Ilco X181 key blank, it is very easy to grab an Ilco X128 Ilco blank and think you have a workable blank. The X128 will work all the locks properly except for the ignition lock. On this lock, the key most likely will turn the ignition on, but will then jam, preventing the ignition from being turned off. The shank of the X181 is 2.5 mm longer than the shank of the X128.

If you are ever called to correct the situation, caused by you or someone else, break the bow off the key and then use a small pair of needlenose pliers or vice grips to turn the key back to the off position, and remove it. Copy the key on the correct blank and your problem should be solved.

All in all, I think it is safe to say that you should not feel the Honda presents any threat. There are a lot of ways to resolve a lost key for a Honda car. The worst thing that can happen to you would be to lose your cool. Fear will cause you to make a mistake. There's nothing to be afraid of. ■

Manipulation

Continued from page 99

not always the indication of a gate. It then becomes necessary to determine which wheel is giving our indication. Illustration eight shows some examples of what our indications could be telling us. Difference in wheel size, tipping of the fence, bearing wear, or wear in the fence itself allow us to read one wheel at a time.

The first step in manipulation would be to take the wheel pack through an all wheels left movement. This means that we would rotate the dial in a counter-clockwise direction (left) four times to pick up all three wheels. Then, stopping



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every 2½ numbers around the dial, we would measure and record or plot the width of the contact area. At some point in this procedure, we should be able to locate an area in the wheel pack that will indicate a low spot. (A decrease in the width of the contact area indicates a low spot.)

Carry the wheel pack across the low spot, checking the contact area every number. This will more accurately show the limits and exact width of the good indication. The center of this good indication area will probably be one number of the combination. Once we have determined that there is a position on the dial that gives the indication of being a gate, we must find out which wheel is giving us the indication. This is a tremendously important operation. If we identify the wrong wheel, all further effort will be wasted. By the use of trial combinations, we can selectively throw off each wheel and ultimately identify the wheel giving the good indication.

We will assume that we found the center of our unknown gate at right 50. Refer to illustration seven and assume that at right 50 our contact area is as indicated (8½ units). Our test combinations will throw each wheel off by 10 numbers. The test combination that gives the greatest change in the indicated contact area will reveal the marking combination wheel. After determining that wheel three was set at right 50, we would proceed by moving wheels one and two around right while each time returning wheel three to left 50. By plotting the contact area every 2½ numbers as wheels one and two are worked around left, another gate should make itself known. Again trial combinations will identify the indicating wheel.

The remaining third number will be found by moving the remaining wheel around every 2½ numbers in the appropriate direction, each time returning the known wheels to their known numbers. Oscillate the dial in the contact area each time a trial combination is worked. This will tend to shake the fence down into the gates. It is not uncommon to find the third number without plotting the contact areas through the last wheel. After the last number has been determined, open the safe.

This is a technique of safe manipulation that works. I have explained the principles and some of the techniques, but the art of making the system work requires patience, perseverance and practice. ■

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Safe Opening Fiesta

Continued from page 150

After he finished drilling, Bob inserted a punch into the hole. After hitting it, the Mosler/Brinks was open. Bob had punched the lockbolt darn near to China.

Photograph 12 shows the hole, the door, and the successful opening that capped off the San Francisco Fiesta.



12. A successful opening ends the San Francisco Fiesta.

Once again, my sincere thanks to Gary Hane for providing us with a first class location, to Terry Andreasen for all the assistance both before and during the Fiesta and to Dave Richardson for being an excellent co-instructor. ■



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